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PAPER TRADE JOURNAL

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Vol. LXXXV, No. 5 AUGUST 4, 1927 Per annum $4.00 Per Copy 10 Cents

Why shouldn't you profit by "Beloit" too?

The judgment of long experience is the soundest. For five years some rather remarkable performances in papermaking have been established by the users of BELOIT UNIT REMOVABLE FOURDRINIER.

These "Beloit" Unit Removable users are enthusiastic in their praise of the exclusive patented "Beloit" features, to which they attribute increased quality production, greater speed, longer wire life, and tremendous savings in time, labor, power and money.

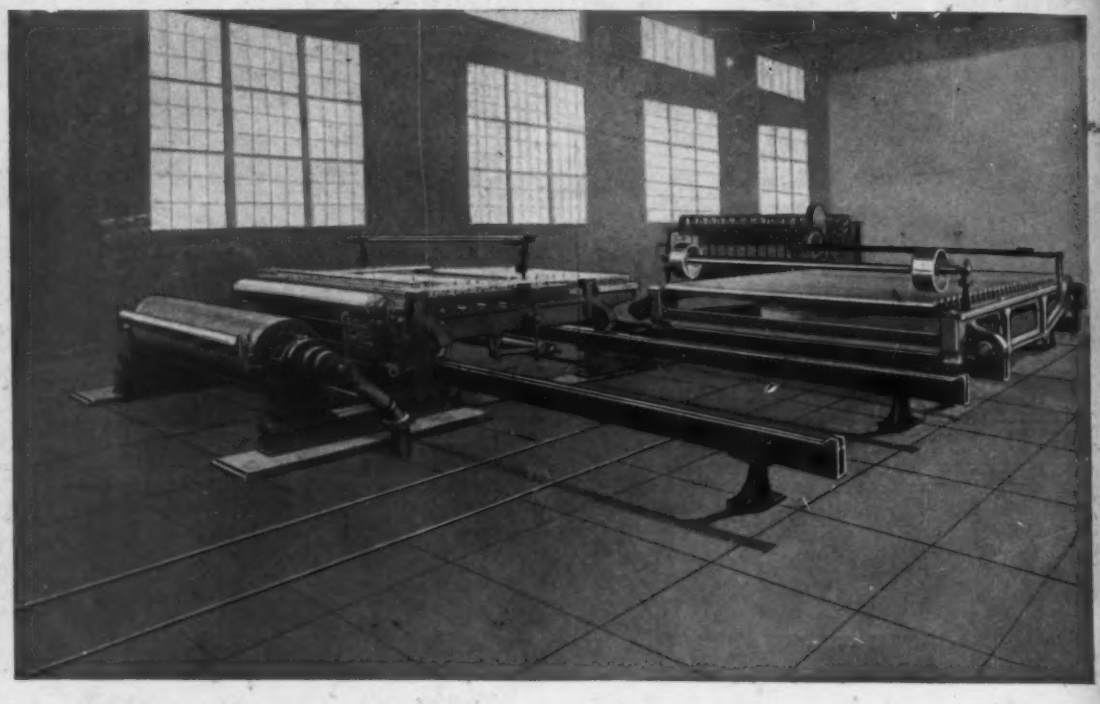
Read the enthusiastic testimony from the 41 actual users, actual proof of "Beloit" unit Removable performances. Send for Bulletin No. 9 giving all the facts.

Unit Removable FOURDRINIER

[BELOIT PATENT]

Beloit Iron Works Beloit, Wis.

Since 1858 Builders of Paper, Board Mill and Container Plant Machinery



Wire Can Be Pitched Without Affecting Inlet Adjustments

Four power operated jacks are installed on each side of the Keystone Fourdrinier, which lower the Table Roll and Suction Box Sections independently, in two separate units, onto the rails when making wire changes. These jacks are also used for pitching the wire. The Breast Roll is not moved, but instead the two center jacks on each side are raised or lowered, thereby giving the desired pitch to the wire without disturbing the inlet adjustment.

This is only one of the exclusive advantages obtainable in the Keystone Fourdrinier. Write us for complete information, list of users and ask us to explain the advantages of removing in two sections and how the wire can be changed without affecting inlet adjustments,—no obligation. When you need a Fourdrinier machine to make News, Kraft, Book, Tissue or Specialties, let us bid on your requirements.

Our Products Meet Our Promises

KEYSTONE Fourdrinier

Downingtown Mfg. Co.-East Downingtown, Pa.

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SIXTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
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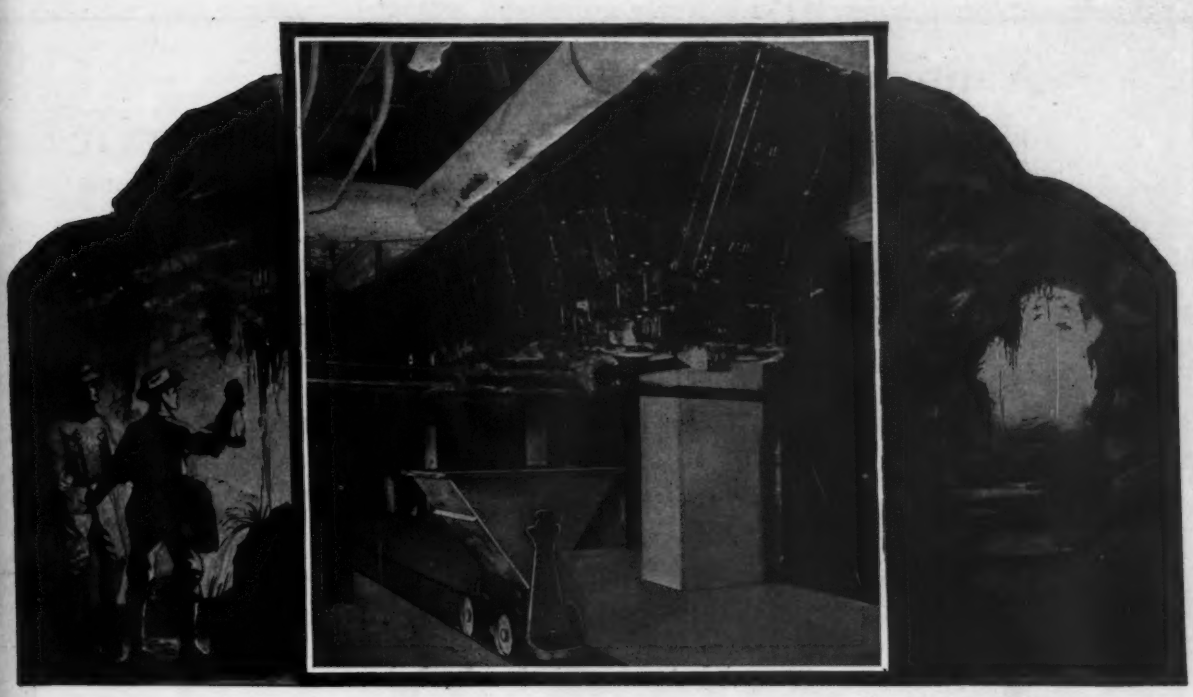
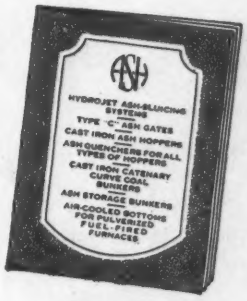


Does Your Ash Basement Remind you of a Cave?

Is your Ash Basement as dirty and wet as a cave? Is your Ash Handling Crew on a day-in-day-out Exploration Trip amid unhealthy hazardous conditions. If so, install A-S-H Cast Iron Ash Hoppers and Type "C" Water Collecting Gates and make your Ash Basement as clean and dry as the turbine room.

Compare the working conditions shown in the above photograph with your ash basement. Note that there is no leaking water, no puddles on the floor, no spilled ashes and no fog or dust.

A-S-H Equipment is suitable for pulverized fuel, stoker or hand fired boilers, its cost is moderate and it can be installed without shutting down the power plant.


ASH
HYDROJET ASH-SLUICING SYSTEMS
TYPE "C" ASH GATES
CAST IRON ASH HOPPERS
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WRITE FOR CATALOG

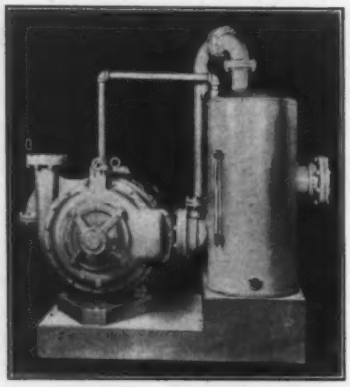
Individual catalogs, describing any of the products listed above will gladly be sent on request, — no obligation.

The ALLEN-SHERMAN-HOFF Co.

233 SOUTH 15th. STREET - PHILADELPHIA

In Canada: Allen-Sherman-Hoff, Ltd., 705 Southam Bldg., Montreal, Que.

A new Jennings Pump for flat box service



The new Jennings Flat Box Pump, for removing water and air from flat boxes.

Designed and built exclusively for removing the air and water from flat boxes, the new Jennings Flat Box Pump offers several advantages that make it unsurpassed for this service.

It is really two pumping units combined within a single casing, —an air pump for removing the air, and a second unit for handling the water. It is compact and self-contained, and is a marked advance over other methods of performing the same service.

Air is discharged directly to the atmosphere without back pressure. Water is returned either to the machine well, or to the beaters or stock chest. By handling the air independently of the water, the Jennings Flat Box Pump functions at high efficiency and effects a material saving in power required for operation.

Complete information and recommendations on request.

NASH ENGINEERING COMPANY

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Mr. G. H. Gleason, Nottingham Bldg., Copley Square, Boston, Mass.

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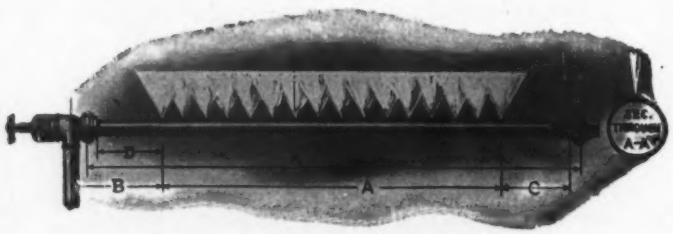
Jennings Pumps

THE "RAINSTORM" SHOWER PIPE



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THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

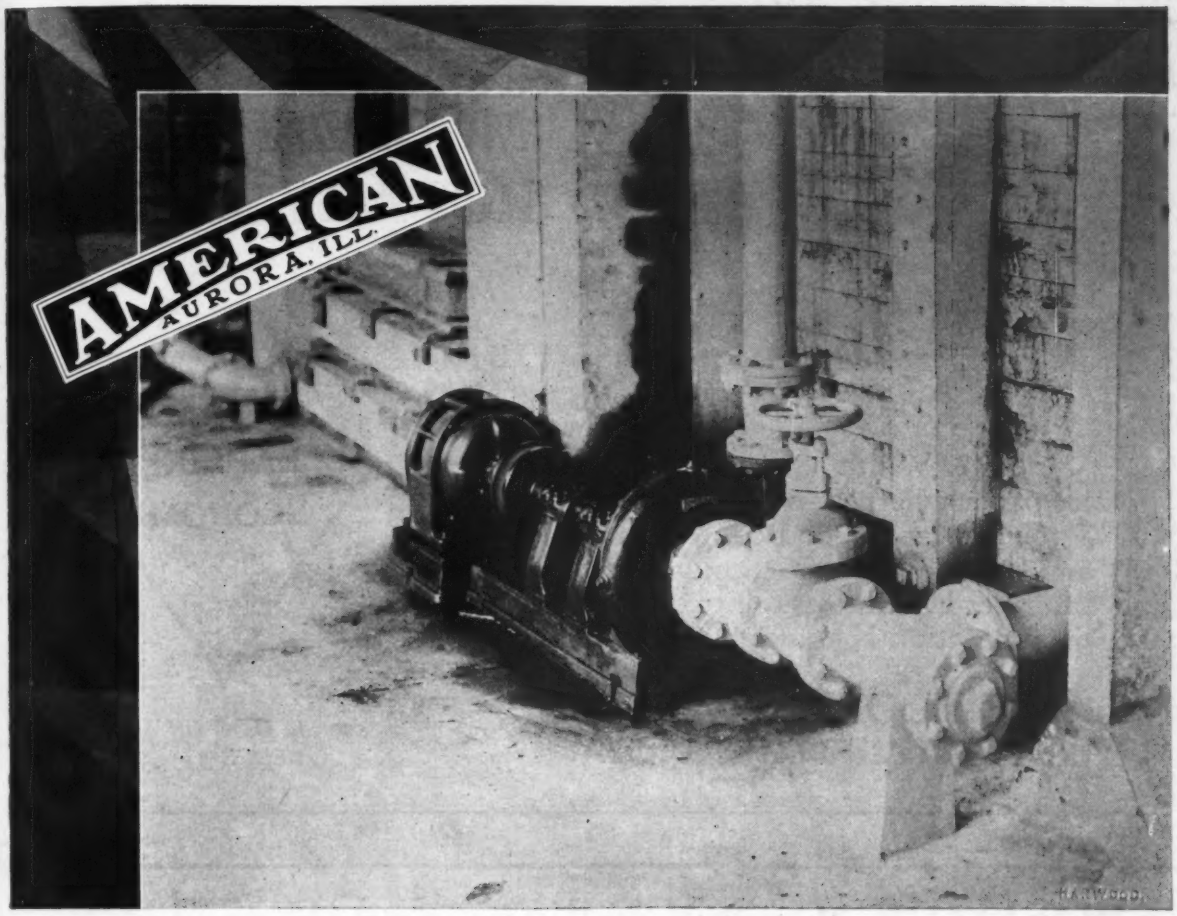
ESTABLISHED 1828

A Complete Line of Paper Bag Making Machinery

BUILDERS OF DEPENDABLE MACHINERY FOR THE PAPER MILL

The Undercut Trimmer

Die Cutting Presses



"American" Pumps in Wisconsin Paper Mills

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PICTURED is an "American" single stage pump handling pulp in a Wisconsin paper mill.

"American" Centrifugal Pumps are made in a number of types, particularly applicable to the handling of semi-solid, heavy, saline or acid solutions.

The non-clogging "American" Centrifugal Pumps are proving unusually efficacious for handling heavy pulp solutions in many mills.

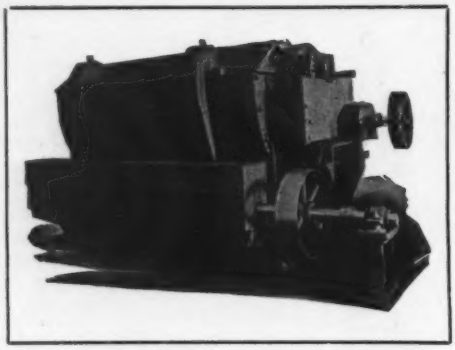
Where clear water is an industrial problem, "American" Deep Well Pumps, of either plunger or turbine type are often the answer.

"American" engineers, experienced in the handling of industrial water problems, are available for consultation without any obligation.

THE AMERICAN WELL WORKS

General Offices AURORA, ILLINOIS *and Factory*

1885



"MOORE & WHITE" ROTARY SCREEN

"Moore & White" Screens produce quality paper whether used on Tissues, Kraft, Roofing Manilas or Book Paper. Lumps and slime spots are eliminated. Breaks on paper are thus prevented and continuous operation is assured.

TONNAGE
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THE MOORE & WHITE CO.
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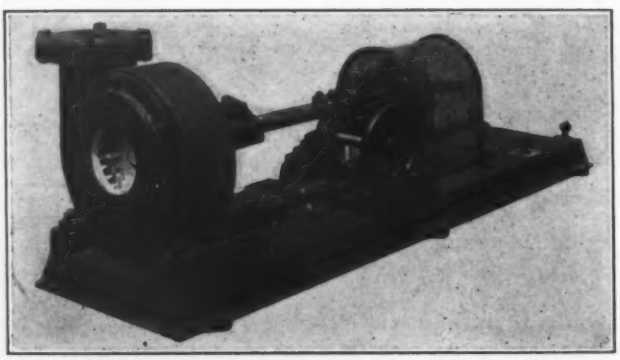
1927

POSITIVE Jordan Fillings and POSITIVE Plugs for every make and size Jordan



The Bahr Centrifugal Refiner, belt driven or direct connected to motor.

Give your stock a last brushing, refining just before going onto the wire, with the result, higher feet per minute with less pickups at the press and a better product.

We solicit your inquiries and orders

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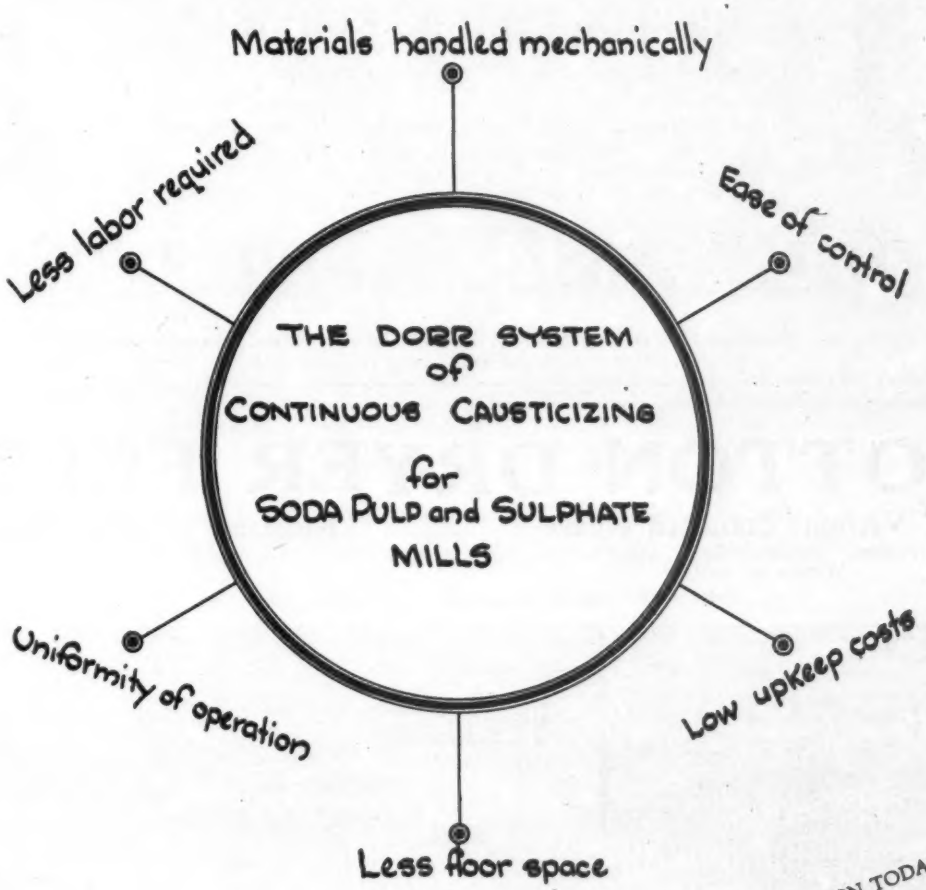

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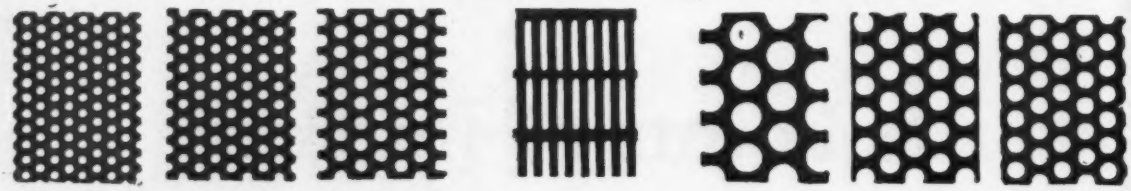

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For Pulp and Paper Mills

For Centrifugal and Rotary Screens—Drainer Bottoms
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Excellence of product at lowest consistent prices

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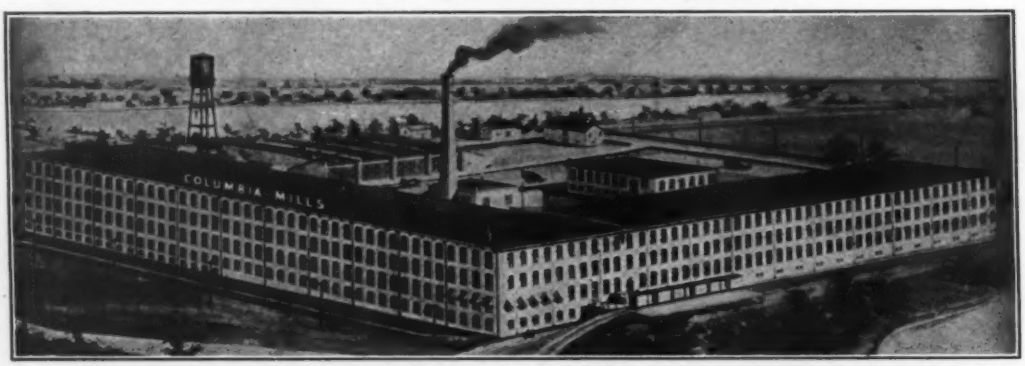
COTTON DRYER FELTS

"Mt. Vernon" Standard Weave
Medium—Standard—Extra Heavy
Widths 36" to 164"

"Richland" Triplex Weave
Widths 68" to 210"

Felts within above ranges made in lengths as required



Columbia, S. C., Plant of Mt. Vernon—Woodberry Mills, Inc., Baltimore—where "Richland" Felts are made

Orders must be placed sufficiently in advance to insure satisfactory delivery

TURNER, HALSEY COMPANY

62 Leonard Street, New York

Sole Selling Agent for

MT. VERNON—WOODBERRY MILLS, Inc.

OLIVERS

Brubaker Aerial Surveys, Portland, Ore.

Three OLIVER Save-Alls were installed in the Mill on one side of this river.

The saving of stock in the White Water was so noticeable that the mill on the other side ordered two Olivers.

The value of the stock which has been going down the river but will now be reclaimed by OLIVERS will amount to over $250 per day.

There are other OLIVERS for other uses in Paper Mills.

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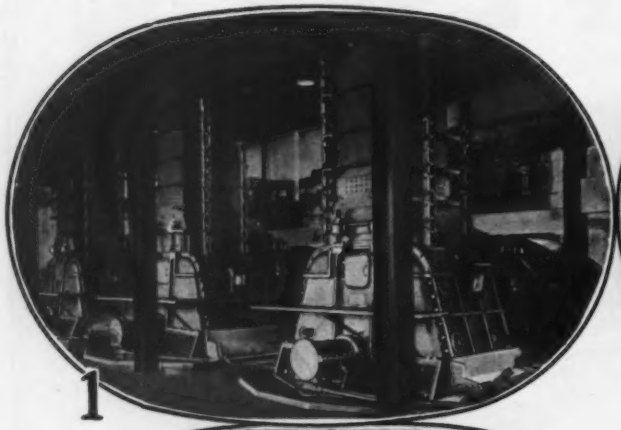
W. A. Ramsay, Ltd.

200,000 h.p. *in G-E Synchronous Motors*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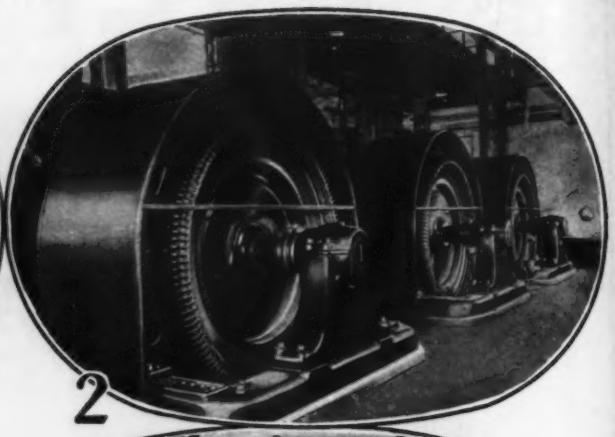
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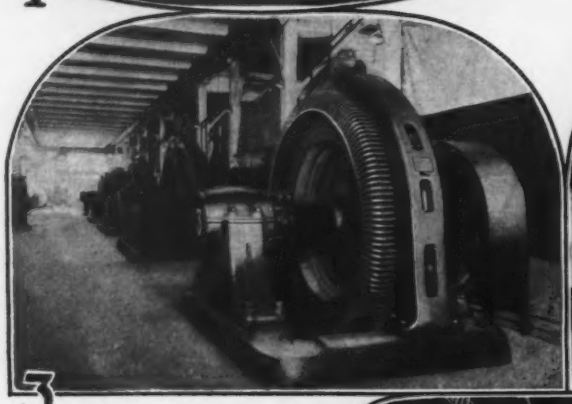
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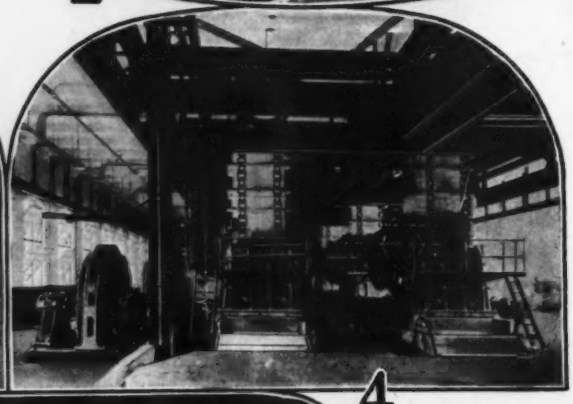
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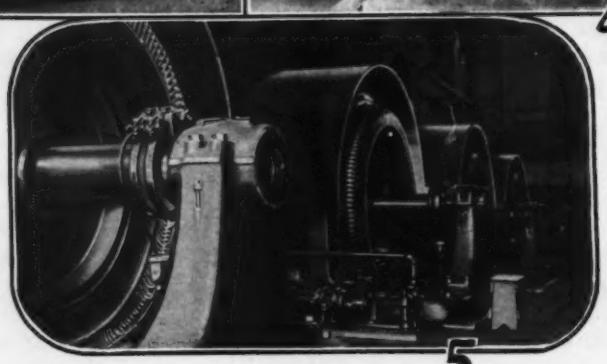

5

When you specify G-E Motorized Power, G-E paper mill specialists study your electric drive problem, recommend the form of drive best suited, select the proper motor or motors from the extensive G-E line, select the necessary control equipment, and then see that the installation is satisfactorily made and serviced. This complete service is readily available through your nearest G-E office.

Motorized Power
–fitted to every need

GENERAL

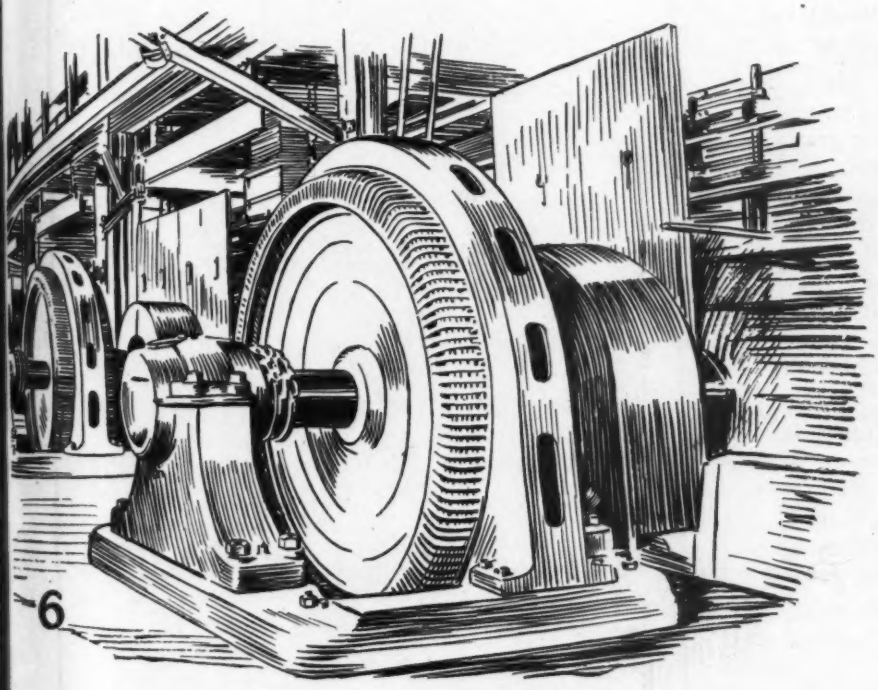
GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

driving Grinders

The paper industry has come to General Electric consistently for its grinder drives. Accordingly there is now installed, on this continent, over 200,000 horsepower in G-E synchronous motors for the operation of grinders.

No electrical manufacturer is so well equipped as General Electric to supply good synchronous motors—for in addition to the large capacity installed on grinders there are additional thousands of horse power operating other paper-mill machinery. This huge production—extended over many years—has brought General Electric a wealth of experience in the design, manufacture, and application of better synchronous motors.

Profit and satisfaction always attend the referring of your grinder drive requirements to your nearest G-E office.

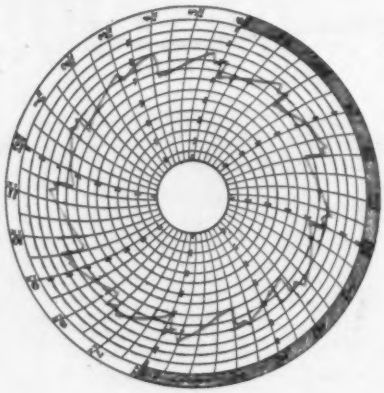


1. *Three magazine pulp grinders at Iroquois Pulp & Paper Co., Thompson, N. Y.*
2. *Three G-E synchronous motors driving the grinders at Iroquois Pulp & Paper Co.*
3. *Seven G-E 2400-h.p. synchronous motors driving grinders at the Canadian International Paper Company, Three Rivers, Quebec*
4. *G-E synchronous motor driving two grinders at the Canadian International Paper Co., Three Rivers, Quebec*
5. *Four G-E 1200-h.p. synchronous motors driving grinders at Great Northern Paper Company, Madison, Maine*
6. *A repeat order from the Canadian International Paper Company, Three Rivers, Quebec, resulted in the addition of eight more synchronous motors to the original bank of seven—thus making a line installation of fifteen G-E grinder drives*

107-17

ELECTRIC

SALES OFFICES IN PRINCIPAL CITIES



This Tells the Story

This chart shows a 24 hour day production of a Noble & Wood high density beater. Each drop of the red line to about 70 indicates a dump. There are 12 dumps of over 2 tons each—a production average of considerably better than one ton to an hour.

This is a record without precedent for this particular grade stock—and the mill where this and several of the same type beaters are installed is meeting that production schedule every day. Furthermore the stock is of much better quality than this mill ever produced—tested 15 to 18% higher in both Mullen and Tear.

There isn't another beater that can compare with this new revolutionary machine. It utilizes exclusive features developed from years of practical experience in the paper making field.

If you are interested in greater production of better quality paper, write us.

NOBLE & WOOD MACHINE COMPANY
Hoosick Falls New York

ORR ENDLESS FELTS

The Orr felts are recognized as most important factors in the production of more and better paper at a lower cost per ton.

These felts are manufactured from wools carefully selected, covering a large experience in manufacturing.

Needless to say they insure satisfactory service.

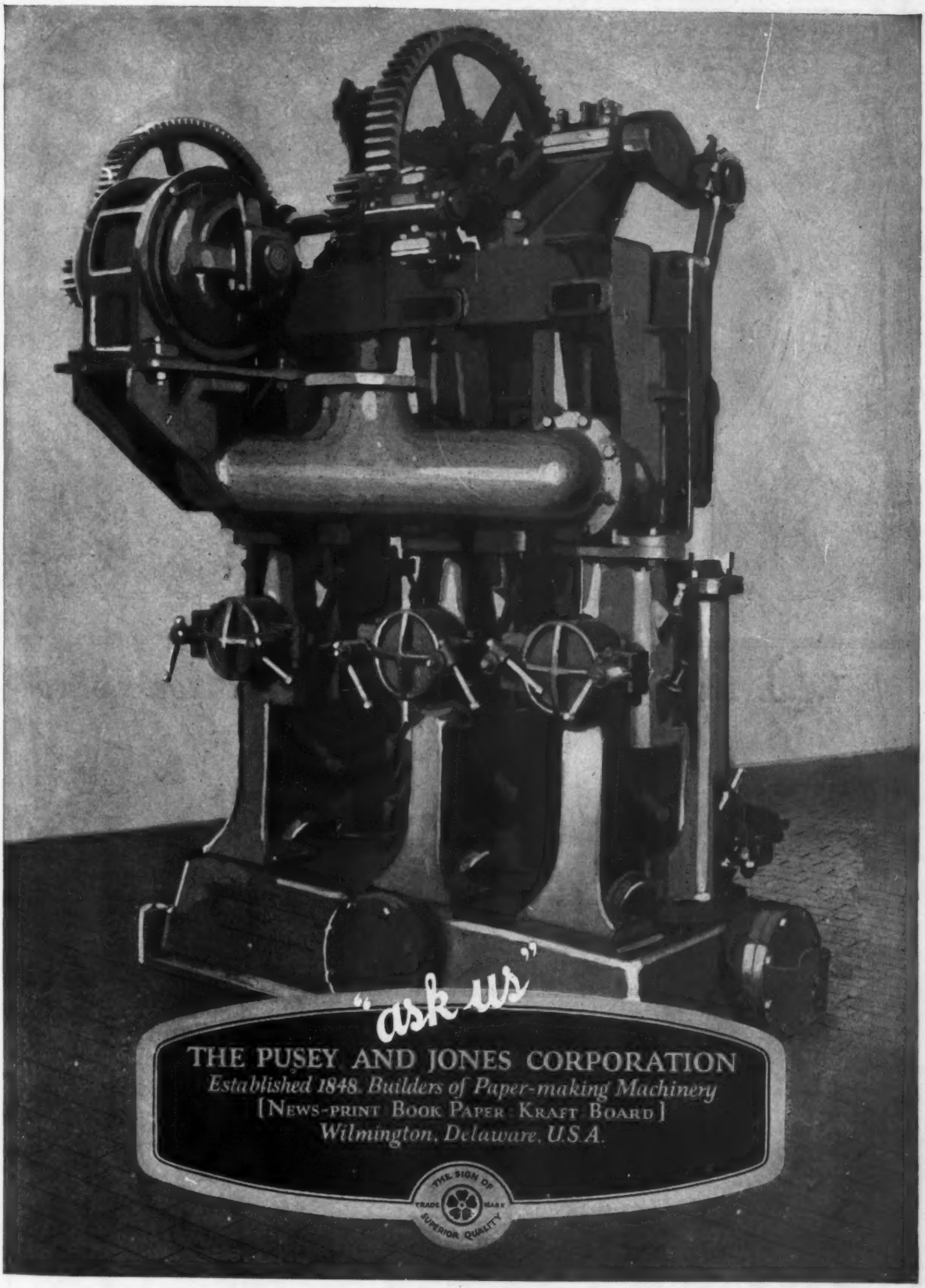
It is possible to weave these felts Endless up to eighty-six feet.

We request a trial, which will prove to your advantage.

Samples of grades required sent upon request.

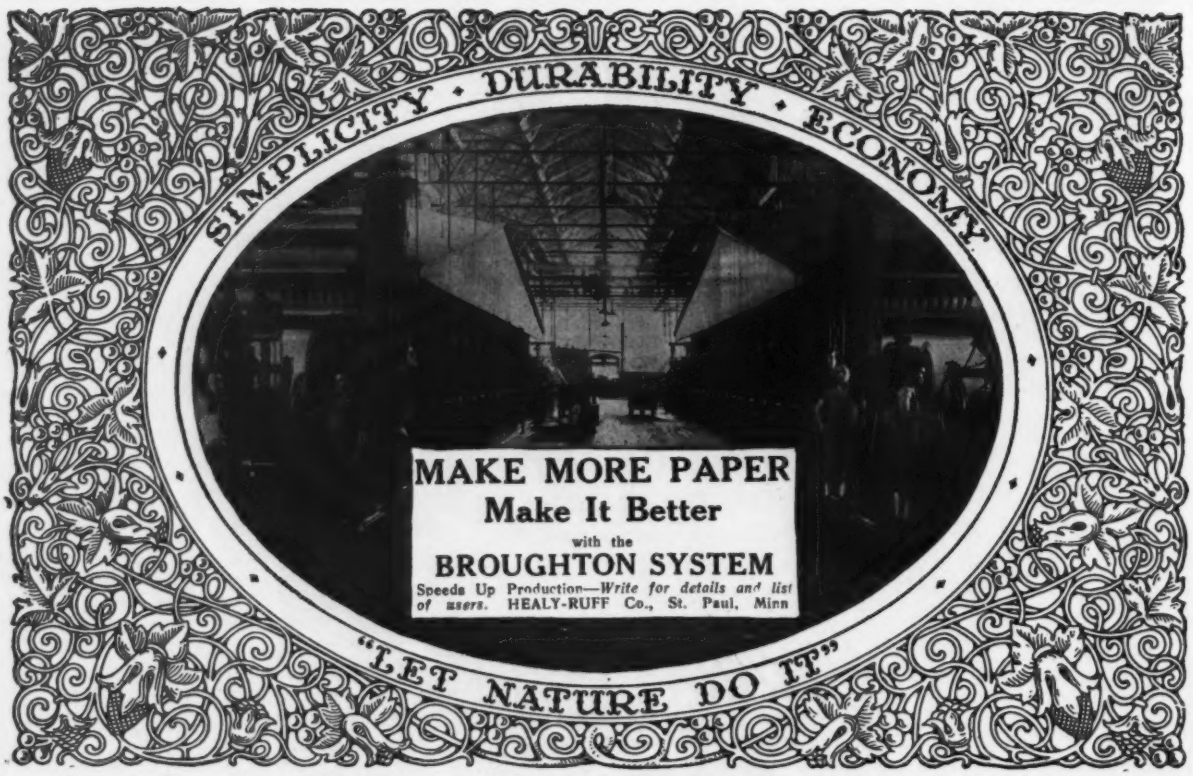
The ORR FELT & BLANKET COMPANY

Piqua Ohio


"ask us"
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
[NEWS-PRINT BOOK PAPER KRAFT BOARD]
Wilmington, Delaware, U.S.A.
THE SIGN OF TRADE MARK SUPERIOR QUALITY

The Puseyjones Stuff Pump illustrated above is one of eight recently installed in one of America's great paper mills (name on application).

Copyrighted 1927 by The Pusey and Jones Corporation, Wilmington, Delaware, U. S. A.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MAKE MORE PAPER
Make It Better
with the
BROUGHTON SYSTEM
Speeds Up Production—Write for details and list of users. HEALY-RUFF Co., St. Paul, Minn
"LET NATURE DO IT"

You Can Always Have Diamond Alkalies on Short Notice

No matter how limited or how large your requirements, Diamond Alkalies are always quickly available. Conveniently located warehouse stocks are available for the less than carload buyer and larger quantities can be promptly obtained through carload shipments direct from the works.

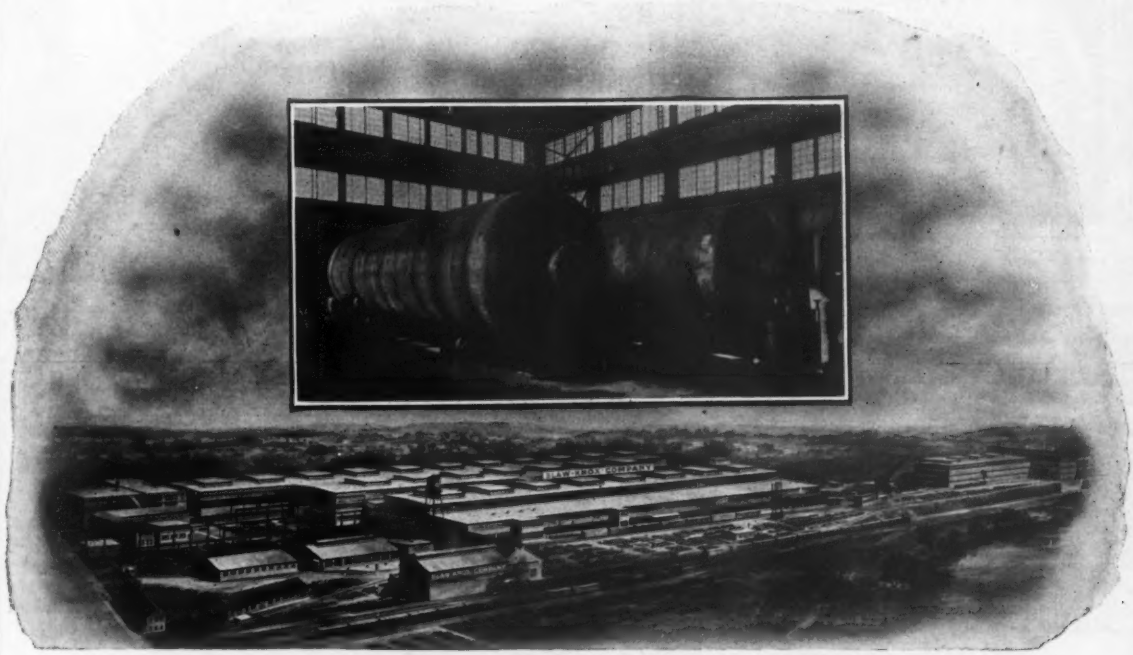
There are Diamond Warehouse Stocks in Your Vicinity

ALKALI

DIAMOND ALKALI COMPANY · PITTSBURGH, PENNA.

Blaw-Knox Digesters—

from the most modern Forge & Hammer Welding Plant in the world ✓✓



Blaw-Knox Digesters, built in the Forge and Hammer Welding plant of the Blaw-Knox Company, are designed by engineers experienced in designing vessels for the paper industry. Exclusive machinery, modern plant layout, most improved methods, together with long experience in rigid shop practice, insure superior results. One-piece annealing is one of the latest requirements exclusive in the Blaw-Knox plant.

A long list of Forge and Hammer Welded Digesters in service—(none of which has ever failed) . . .

The most modern Forge and Hammer Welding plant in the world . . .

These are what Blaw-Knox Company can offer you.

We shall be glad to furnish quotations on stationary, rotary, and tumbling Digesters.

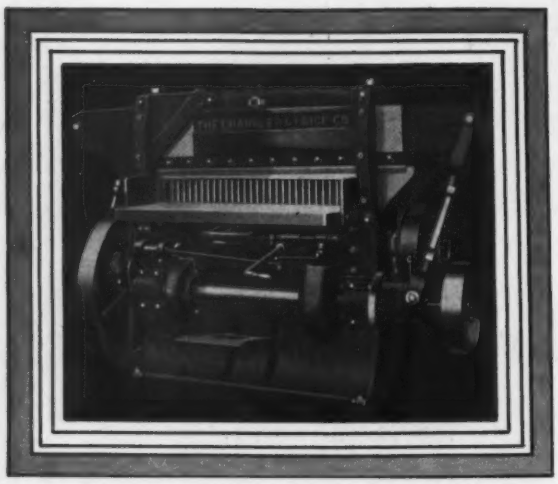
BLAW-KNOX COMPANY
639 FARMERS BANK BLDG., PITTSBURGH, PA.

NEW YORK CHICAGO BALTIMORE BUFFALO BIRMINGHAM CLEVELAND DETROIT PHILADELPHIA
SAN FRANCISCO—411 Matson Building

BLAW-KNOX

WP-2959

The C & P "Automatic" Cutter Eliminates Vibration



The C & P "Automatic" is really automatic. A quick twist and pull-up on the control lever—one movement of the operator's hand—releases the binder, which forces out the air, settles the pack, and holds it rigidly. The knife follows through at once with a true, straight cut. Binder and knife lift instantly and the knife is held against repeating. The whole operation takes less than three seconds.

THE C & P Automatic Cutter has a fly-wheel supported between ample bearings inside the base. Smooth running and long life are thus assured. Vibration, a deadly enemy of accurate cutting, is done away with.

Besides this great advantage, the C & P "Automatic" offers these features:

1. Convenient, centrally-located control. Other outstanding conveniences, too.
2. Patented knife action. Massive knife bar *pulled*, not pushed, through stock. No chatter.
3. Controlling mechanism with safety pin, requiring 2-way movement of lever to release binder and knife.
4. Heavy, oversize, powerful brake, easily adjusted, very accessible. Specially prepared lining.

May we give you the rest of the C & P "Automatic" story?

Chandler & Price
PAPER CUTTERS & PRESSES

The **CHANDLER & PRICE CO.**, *Cleveland, U.S.A.*

EXHIBITOR
GRAPHIC ARTS EXPOSITION
New York *Sept. 5-17, 1927*

"Saves 15 man-hours daily —cuts loading time 50%"

That's the result of a 2 ton Shepard Hoist which helps to load motor trucks at the Cincinnati Terminal Warehouse, Cincinnati, Ohio.

Shepard Hoists relieve floor congestion. They provide rapid, labor-saving handling of heavy rolls of paper, news print and other bulky loads by using "air-lanes" instead of floor space.

They are compact, sturdy units that assure consistent hoisting service. Every hoist is an enclosed dust-proof unit; has the Shepard "Balanced" gear drive, automatic oil bath lubrication and is permanently aligned.

Choose from the most complete line of electric hoists in America. Shepard offers you more than 5000 types, a floor or cage operated hoist to fit precisely your needs. Write for a copy of the Shepard Floor Operated Hoist Catalog.

SHEPARD ELECTRIC CRANE & HOIST CO.

378 Schuyler Avenue,
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Branches in principal cities.
Largest Manufacturers of Electric Hoists in America

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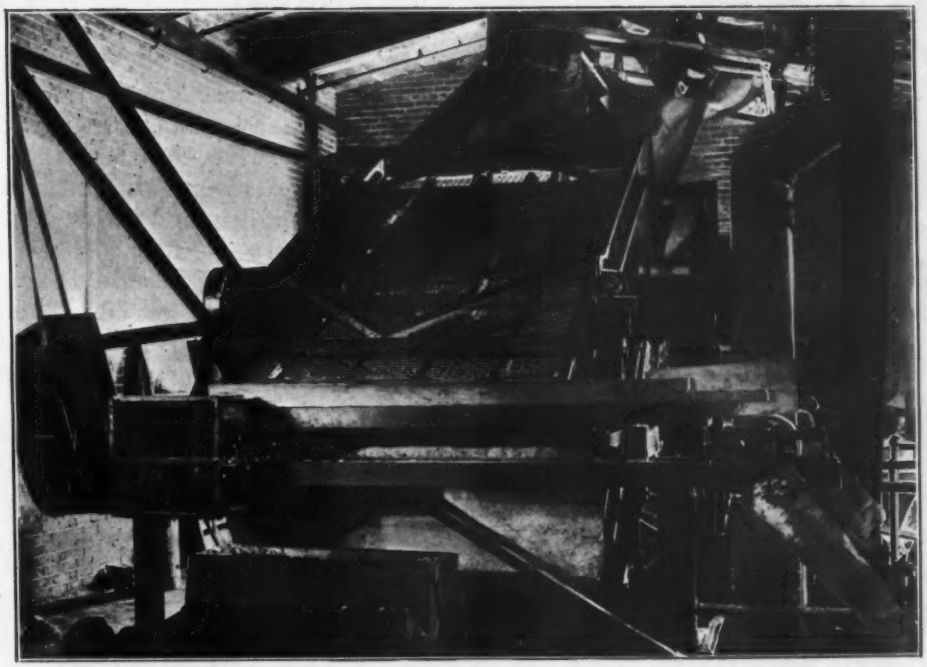
RYTHER CHIP SCREEN



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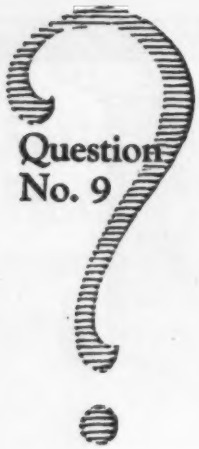

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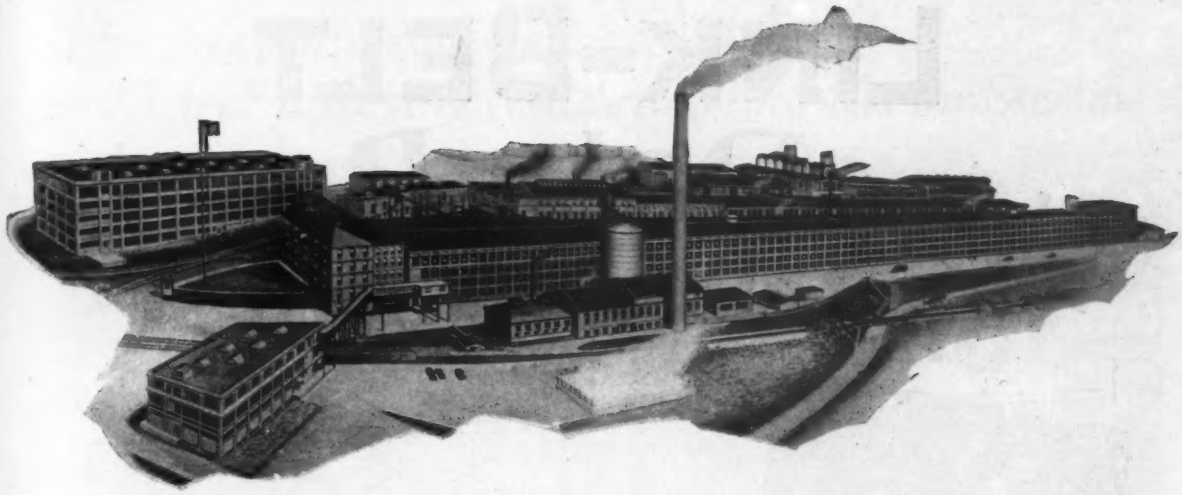

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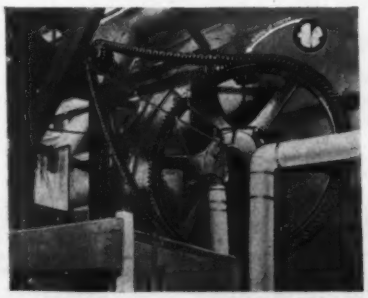

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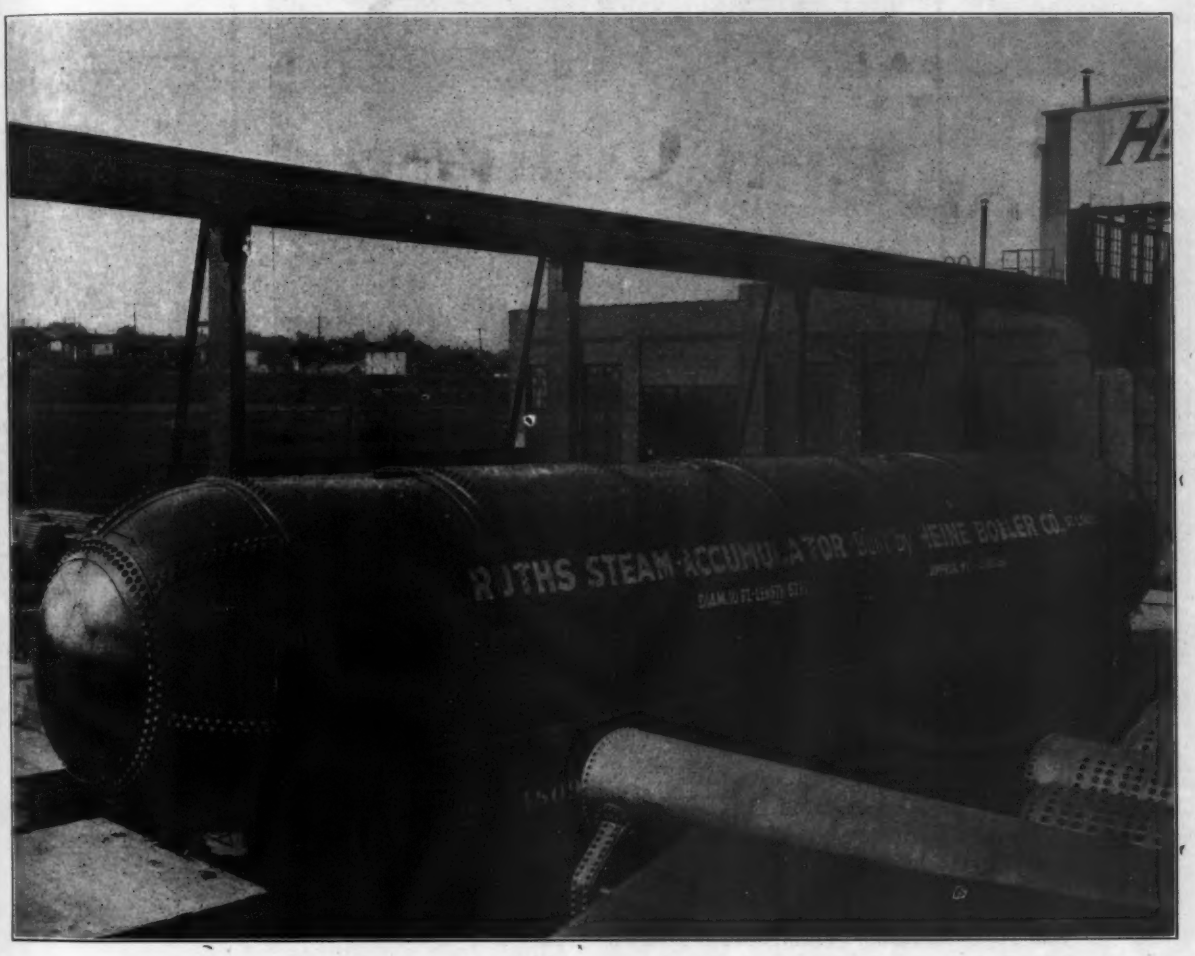

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The Reading Company, to avoid a thirty mile haul or steep grades and tunnels, uses a 5,000 H.P. hoisting engine at Mahanoy Plane near Frackville, Pa., in the heart of the anthracite coal region.

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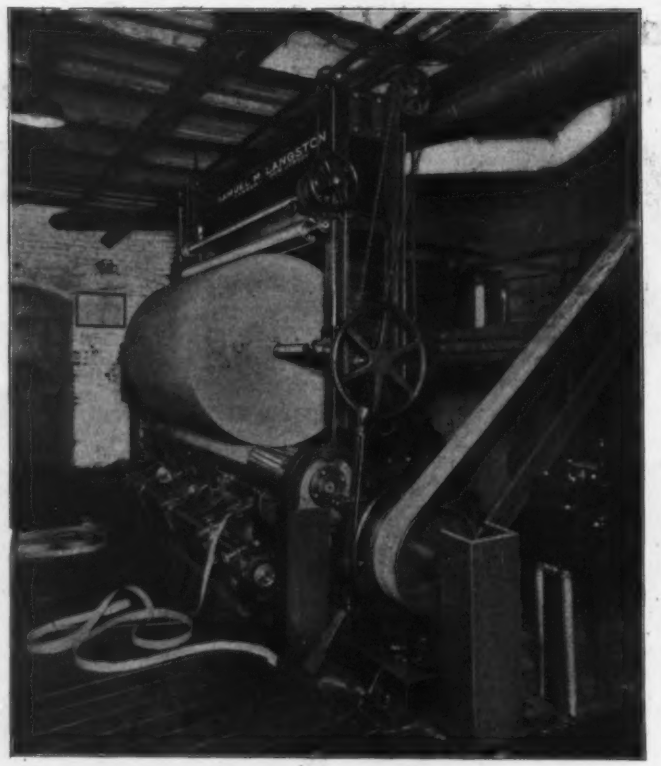

One of four 82-inch Langston Winders in plant of H. F. Watson Company, Erie, Pa.

4 Langstons—one after another

THE first Langston Slitter was installed in the mill of H. F. Watson Company, Erie, Pa., in 1923. The next year two additional Langston Slitters were put in, and a fourth Langston was placed in service in 1926.

All four of these Langston Slitters are 82 inches in width and are used as Winders at the ends of saturating felt machines.

This is only one of numerous cases in which a mill has bought one, two, three, four, or more Langston Slitters, one after another, the satisfactory performance of each Langston leading the purchase of the next.

A very large proportion of all Langston Slitters built are purchased by concerns who are already using one or more of our machines, know from their own experience the kind of work you can always expect from a Langston, and buy another Langston when they need more equipment.

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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

The Magazine of the Paper Industry

Vol. LXXXV, No. 5 — Thursday, August 4, 1927

Rex Pulp and Keyes Fibre in $5,000,000 Merger

Same Interests Which Control Rex Pulp Products Buy Outright the Entire Assets of the Keyes Fibre Co. and Will Merger the Two Concerns Under the Name of The Keyes Fibre Co., Inc.—The John M. Hart Co. of Chicago Which for Years Has Been Sales Agent of the Keyes Co., Will Handle Output of the New Corporation

AUGUSTA, August 1, 1927.—The Keyes Fibre Company, of Waterville, the world's largest manufacturer of pulp pie plates and one of the most successful companies in New England, was sold last week to the same interests which control the Rex Pulp Products Company, the group which recently took over the plant of the former Bath Iron Works at Bath. The purchase was outright and includes the entire assets of the Keyes Fibre Company. No price was mentioned.

The Keyes Fibre Company and the Rex Pulp Products Company will be merged under the name of the Keyes Fibre Company, Inc., and the combined companies will have a total capitalization of more than $5,000,000.

The John M. Hart Company of Chicago, which has been sales agents for the Waterville company, will handle the sales organization of the two companies.

Maine Men on Directorate

The sponsors of the Rex Pulp Products Company, who also serve as its board of directors, are: Walter S. Wyman, Augusta, president of the New England Public Service Company and the Central Maine Power Company; Spaulding Bisbee, Portland, manufacturer and banker; Ward F. Paine, Boston, member of the firm Paine, Webber and Company, public utility operators and owners of the Portland Gas Company; Morriss F. LaCroix, Boston, also a member of Paine, Webber and Company; S. Stanwood Menken, attorney, New York City; John M. Hart, Chicago, sales agent of the Keyes Fibre Company; Merle P. Chaplin, New York, long recognized as an expert in the pulp industry; W. E. Parsons, Portland, and Guy P. Gannett, Portland.

To Increase Capacity

Absorption of the Keyes Fibre Company by the new interests will mean that the entire output of moulded pulp pie plates will be turned out at Waterville and the present production capacity greatly increased. The plant of the former Bath Iron Works Company at Bath will be temporarily used as a laboratory to test out the possibilities of the new pulp machines perfected by Mr. Chapin, one of the directors.

As soon as the machines are tested and a market built up for these various types of pulp products, the company will start manufacturing in Bath on a large scale. Mr. Chapin will move to Bath within a short time and personally supervise the experimental work there.

In connection with the purchase of the Keyes Fibre Company it is announced that a public offering of securities will be made by a syndicate headed by Paine, Webber & Co., of Boston, and Ireland & Co., of Portland. This will be the first time investors will have an opportunity to share in the prosperity of the Keyes Fibre Company, which always has been known as a "close" corporation.

Dr. Averill to Retire

Dr. George C. Averill, who has been the controlling interest in the Keyes Fibre Company for the past 17 years, will retire. Dr. Averill has been responsible in great part for the success of this company and has earned for himself a reputation of being one of the leading business men in Maine and in New England.

The Keyes Fibre Company is universally known as the largest manufacturer of moulded pulp pie plates in the world, its daily output averaging four million plates in twenty-four hours. This output is supplied to the largest baking companies in the United States and Canada, as well as most of the foreign countries. Forty-two machines are whirring on three shifts daily, consuming forty tons of pulp every twenty-four hours. These plates are made in seventeen shapes.

Martin L. Keyes Invented Machinery

Martin L. Keyes, after whom the Keyes Fibre Company is named and who was its president from its inception in 1903 until his death in 1914, invented the machinery for manufacturing pie plates in one operation from ground wood pulp to the finished product. This patented invention has given to the Keyes Fibre Company all pie plate manufactured by the moulded process. This method is the only one by which an absorbent pie plate has been made, the absorbent quality of the plate being an essential factor demanded by users throughout the country. This pie plate is marketed under the trade name "Papyrus."

Founders of Company

While the phenomenal success of the Keyes Fibre Company would not have been possible without possession of Mr. Keyes' patented machinery, yet the extent to which the company has grown and succeeded may be attributed in a great extent to the men who invested their money in the beginning. Those who conducted the affairs of the company as its board of directors for many years were William L. Brooks, Holyoke, Mass.; Nathan Heard, Boston; and the late Edward J. Lawrence, Fairfield, Maine; Edward W. Heath, Waterville; Edward H. Allyn, Holyoke; C. D. Prince, Portland, and Albert G. Page, Fairfield. The counsel and business advice of William A. Brooks in the early

(Continued on page 32)

Paper Business Lags Along in Philadelphia

Dealers Are Cautiously Stocking for Immediate Requirements and Prices Generally Hold to Previously Quoted Levels—Manufacturers of Specialized Lines Enjoy Wide Range of Business—Demand for Fine Papers Limited

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 1, 1927.—While business lags along and dealers are cautiously stocking for immediate needs only, prices continue to hold securely to the highest levels that have prevailed since last Fall, and at values that top any summer season in the past three years. A few of the mills have been experiencing a wider range of business within the past week but this broadening of orders is confined to specialized lines, such as glassines, builders papers and container boards. Fine paper mills in some instances are running near capacity but others are reported on curtailed schedule.

Fine Paper Distribution Limited

Fine papers have been moving in a narrow market and the demand has been limited to a few of the grades consumed by the publishing trades and the larger printing concerns. There is a particularly brisk market for uncoated book papers handled in wholesale volume and purchased in many cases under contract consignments. The average commercial printer is in the market for limited purchases.

Coarse Papers Steady

As the textile industries improve and seasonal specialties become more active, the coarse paper trade enjoys a steady demand for small lot orders. Larger consumers of papers that are seasonally active, such as the textile industries that are controlled by automobile corporations are now buying in volume specialties for their respective requirements in paper packing, finishings and other needs. The cheaper grades of coarse papers, such as butchers fibers, screenings, bogus and like low priced wrappings are now at the highest summer prices for the past three years.

Mills producing coarse grades in the Pennsylvania district have experienced no interference from the anticipated fuel disturbances which were looked for when announcement was made in late spring of the bituminous coal strike at the State mines. The prices of coal in this State have been held at the Spring quotations and the open shop working situation at the mines has not interfered with mining operations, so that manufacturers are able to proceed with their normal course in production schedule without delays occasioned by lack of fuel, or soaring prices.

Mills featuring glassines, such as the McDowell Paper Mill, in the Manayunk district, are sold ahead on present production. There is a growing demand for these specialties in wrappings at the McDowell mills and the past week indicated a demand that will exceed last year's business at this time. Other mills producing glassines are also fairly well booked for the coming autumn supply.

William McKay Superintendent of Cherry River Mills

With the return of Mr. Ramsay to the local paper manufacturing trade, William McKay becomes superintendent of the Cherry River Paper Company Mills, at Richwood, Va. The new superintendent was formerly identified with the American Writing Paper Company, in Holyoke, Mass., and in recent months had been connected with the Piercefield Mill, New York, of the International Paper Company. He was superintendent of the American Writing Paper Company Mill for eight years. Clark H. Morian, sales manager of the Cherry River Paper Company, leaves this week for a trip to Richwood, Va., to inspect the mills.

Garrett-Buchanan Co. Acquires Park Weikert Co.

The cordage and twine business formerly conducted by the late Parke Weikert, 20 South Marshall street, has been acquired by the Garrett-Buchanan Company, general paper dealers, 16-20 South Sixth street. The distribution of the twines, ropes and cords manufactured by the Columbian Cordage Company, of Auburn N. Y., in the Philadelphia territory, is conducted through the Parke Weikert Company. The Garrett-Buchanan Company will continue to conduct the old establishment founded by the late Parke Weikert, whose demise occurred last Fall. The business has been conducted under a reorganization of mill ownership and former associates of the late owner, who will continue to be employed under the paper house regime. President John H. Sinex, of the Garrett-Buchanan Company, was taken by automobile to his summer home in Maine last week, following several weeks confinement in the Pennsylvania Hospital.

J. Garfield Ramsay With Jessup & Moore

Following several months association with the Richwood, Va., mills of the Cherry River Paper Company as superintendent of the plant, J. Garfield Ramsay, formerly of the Dill and Collins forces, has returned to this section of the country and its paper industry as superintendent of the Augustine Mill of the Jessup and Moore Company, in Wilmington, Del. With his return to the paper industry hereabouts there is expected to be a revival of interest in the Pennsylvania-New Jersey Division of the National Paper Mill Superintendents Association, of which he is president. Until his association with the Cherry River Paper Company a few months ago he was connected with the Flat Rock mills of the Dill and Collins Company as superintendent, resigning from that concern just prior to the closing of the mills, now idle.

Paper Men Legion Delegates to Convention

Vice President R. J. Considine, of the Paper House of Pennsylvania, and his associate on the sales organization of that company, Earl Miller, leave this week to attend the American Legion Convention for the State of Pennsylvania as delegates from their respective Posts. Vice President Considine will represent the Benjamin Franklin Post where he is on the Executive Committee, while Mr. Miller is finance officer of the Tioga Post, one of the most thriving of local Legion organizations. Leonard A. Peck, manager of the Paper House of Pennsylvania, has returned from a vacation journey to the Maine coast, of several weeks' duration.

Beck Paper Co. Associates in Mill Camp

Associates of the Charles Beck Paper Company, 609 Chestnut street, were represented at the Camp Mill Conferences given by the S. D. Warren Paper Company, last week. Vice President Andrew Simon, accompanied by E. P. Joseph and K. I. Stroh, of the sales organization, motored to the annual Camp Mill Conference at Cumberland Mills, Maine, remaining there for the three day business and outdoor social activities which held over the week end. W. G. Young, of the D. L. Ward Company, another distributor of the S. D. Warren Company, represented his firm.

Having for several years been the Philadelphia manager of the United Paper Board Company, with offices in the Bourse, W. W. Lightfoot has severed his connection with that company to join the forces of the Federal Container Company. He will be in charge of the plant and production.

Otto Renner, who for many years was head of the sales department of the Whiting Patterson Company, in this city, and recently has been connected with Pitssubrgh paper interests has returned to Philadelphia, and will represent the George W. Wheelright Paper Company of Leominster, Mass., here.

S. Walter Co. To Develop

S. Walter, Inc., 144 North 5th street, one of the largest coarse paper dealers in this city, and recently branched out to State affiliations by purchase of the York, Pa., interests of the R. P.

(Continued on Page 74)

New Carton Company Organized at Neenah, Wis.

Corporation With Capital Stock of $100,000 May Take Over Plant of Defunct Elm Park Paper Box Co.—Dam To Be Constructed on Wolf River in Near Future Expected to Benefit Fox River Valley Water Power Situation

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 30, 1927.—Organization of a new carton company is announced at Neenah, Wis. The corporation is to be known as the Wisconsin Carton Company, and is capitalized at $100,000. The stock consists of 1,000 shares of common with a par value of $100.

Signers of the incorporation papers are Alfred J. Danke, Neenah, Wis.; Adam Schwartzbauer, Menasha, Wis., and James T. Mader, Appleton, Wis. These men have not announced their plans, except for the statement that they have not decided on a location for their operations. It is rumored, however, that the corporation will take over the plant of the defunct Elm Paper Box Company, Neenah. Manufacture of paper boxes, cartons and small articles of composition is planned.

New Power Plant Project

Another power plant is to be added in the paper manufacturing region of central Wisconsin through permission granted by the Federal Power Commission to the Wisconsin Power and Light Company to construct a dam on the Wolf River. It will be located in Shawano County, just below the Menominee Indian reservation. No details as to the size of the dam or the extent of the power are available as yet.

This dam and others which are being agitated for construction further up the Wolf River in the Menominee reservation are expected to help the water power situation in the Fox River Valley, where many paper mills are located. It is now necessary to sluice off considerable of the water fed into Lake Winnebago by the Fox and Wolf rivers in order to maintain the lake level at governmental requirements. The new dams will back up the waters of the Wolf, forming several lakes. These will serve as reservoirs that can be utilized during low water periods so as to keep the water power uniform.

Robert Miller to Manage St. Juan Mill

Roland Miller, of Appleton, Wis., formerly connected with the United States Forest Products Laboratory at Madison, Wis., has been appointed manager of the St. Juan Pulp Manufacturing Company, of Bellingham, Wash., according to a recent announcement. He was the inventor of a process for making paper from eucalyptus wood, and also made important discoveries in Brazil.

Menasha Salesmen Confer

Thirty traveling salesmen of the Menasha Printing and Carton Company, Menasha, Wis., spent the last three days of this week attending conferences at the home office. Dinners and luncheons were held each day, with business sessions each afternoon. One of the pleasure events was a round of golf on the Butte des Morts Golf Club course. The company recently merged with the Marathon Paper Mills, Wausau, Wis., and the discussions included the changes incident to this situation.

Forest Products Laboratory Activities

The United States Forest Products Laboratory maintained at Madison, Wis., is now seventeen years old and increasing in use and influence. Although conservation of timber and its various uses in manufacture are among the primary activities of the laboratory, the paper and pulp section investigations form one of the largest departments. Experiments have been carried on for many years to determine how a greater number of woods can be used in the manufacture of paper, and an important service thus has been rendered to the industry. The ready and intense cooperation of the paper industry itself has helped greatly in contributing to the progress thus far. One of the interesting discoveries by the laboratory was the possibility of making a satisfactory book paper from ailanthus. This tree has become a pest in certain parts of the country because of its heavy seeding and rapid growth. There were no commercial uses for the wood and the paper manufacture is expected to make it of some value.

White Rapids Dam Tragedy

Five lives have been sacrificed in the building of the White Rapids dam on the Menominee River by the Northern Electric Company, subsidiary of the Northern Paper Mills, Green Bay, Wis. This tragic turn of events took place this week when a coffer dam crib overturned and the workmen were swept down the swollen river to their death before rescue could be effected. The dead are Emanuel LeBrasseur and Napoleon Lalonde, carpenters of Manistique, Mich., John Walburn, carpenter, Brainerd, Mich., Leo Hashay, foreman, Minneapolis, and Mike Palka, Iron Mountain, Mich. These men were employed by Seims, Helmers, Schaffner Company, contractors of St. Paul, Minn., who are finishing up the $3,000,000 paper mill power project. The crew had just completed a coffer dam crib and believed it was well anchored. The ropes were cut, the current quickly undermined one side of the crib and it overturned, throwing its victims into the rapids. Two were rescued.

Fatal Accident at Valley Iron Works

A fatal accident occurred at the plant of the Valley Iron Works, Appleton, Wis., this week when John Landowski, an employee, fell and fractured his skull. He was knocked from a ladder by an electric crane, and dropped head foremost for a distance of twelve feet to a concrete floor. He lived for several hours.

Raymond, Wash., Wants Pulp Plant

RAYMOND, Wash., July 29, 1927.—(Special.)—The membership and finance committee of the Raymond chamber of commerce has been named by Floyd L. Lewis, newly elected president of the board of trustees. The committee includes H. L. Born, J. A. Waul, B. B. Dietrich, C. E. Beall, Earl Badgley, Clayton Vaughn and W. C. Vandervort.

One of the first pieces of work to be undertaken by the new chamber, it has been decided, will be the circularization of all pulp and paper manufacturing plants in the United States, giving them data on Pacific county's timber supply, water rates in Raymond, shipping facilities here and other general information, in the hope of soliciting inquiries from plants now seeking new locations.

Start Technical Division in Cincinnati

CINCINNATI, Ohio, August 1, 1927.—The Technical Division, recently established by General Naval Stores Company, Inc., in connection with their District Sales Office, 4125 Hamilton avenue, Cincinnati, is now in full operation under the direction of E. V. Romaine, assisted by R. J. Spitz, as field man and Henry J. Warmuth, formerly with The Newport Company, in their Chemical Laboratory at Carrollville, Wis. The special research work at Cincinnati, has to do with perfecting uses for wood rosin.

Paper Demand Seasonably Quiet in Toronto

Trading Has Been Spotty of Late, With Frequent Interruptions, Due to Summer Holidays—Many Paper Mills Continue to Operate at Nearly Full Capacity—Box Plants Moderately Active—Autumn Prospects Bright

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 1, 1927.—In the paper line, business just now is marked by seasonable quietness and warehouses have had a rather trying time to beat the record of the corresponding month of last year. While all the returns are not yet in, the general opinion is that they will break about even on the average. Trade has been very spotty of late and, with the holiday period in full force, there have been not a few interruptions. Mills are well employed and are running in most instances to pretty nearly capacity although some are slackening off. It is expected that business with the jobbers will pick up considerably during the coming month. A number of large printing jobs are being figured on for the fall fairs and jobbers have been sending out much literature urging an early placement of orders for autumn supplies of paper. It is hoped this will have a beneficial effect and that there will not be the last minute rush for exhibition and other requirements which has characterized past seasons. Manufacturing stationers and envelope producers are fairly well employed, while paper box plants are moderately busy for this time of the year. Their big rush comes on when the canning season is in full progress but this will not be for a few weeks yet.

Charles Allen Retires from the Trade

Charles Allen, who for the past year and a half has been sales manager of the United Paper Mills, and before the acquisition of the Allen Paper Company by the former organization, was head of the latter firm, has retired, and will enjoy a long period of rest. The health of Mr. Allen has not been of the best for some time and his withdrawal from active association with the industry is very much regretted by a large circle of friends, who will wish him many years of happiness and contentment. Mr. Allen, before launching the Allen Paper Company, was for many years on the sales staff of the Buntin Reid Company and is well known to the trade in every part of the province. He has been succeeded by C. W. Paull, of Hamilton, Ont.

Location of New Board Mill

It is understood that satisfactory arrangements have been effected for the location of the new 60 ton board mill of the Canadian Paperboard Company, on the Ashbridge's Bay property, Toronto, and that plans for the new structure are well under way. Building operations will start in the near future and the plant, which will have a capacity of 60 tons a day, turning out all kinds of board, will be in operation within a year's time. This will make the fourth unit of the Canadian Paperboard Company, the other plants being located at Montreal, Frankford and Campbellford, Ont. The new mill in Toronto will be splendidly equipped, and will represent the last word in construction.

Holding Pulp Wood Cutters Hard Job

In the Rainy River, Thunder Bay, and Kenora districts, during the past season, over 7,000 men were employed in taking out pulp wood, timber and ties. In spite of the scarcity of work elsewhere it is stated that last winter was one of the worst on record for men jumping their jobs and that at the beginning of the season a strike among the pulp wood workers tied up many camps just at a time when the best results are achieved in the winter's cut. Following the dying out of the strike, labor became very unsettled, more men being seen coming out from the camps than those going in. One company hired 2,100 men in the five months that it was operating in order to keep up its gang of 900 necessary to take out the winter's cut.

Within the next five years, when the proposed additions are made to the present pulp and paper mills in Northern Ontario, and three other new ones are built and operating, it is said that another 5,000 men will be required to cut their pulp wood. It is declared that with the gradual improvement in all lines of business in Canada which is noticeable all around, greater difficulty than ever will be experienced in securing labor for the woods, as most of the men who now go into the bush, prefer a job in town which will give them a bare living, to one in the camps at which they can have a balance to their credit at the end of the season.

Pulp Wood Season Nearing End

In northern and northwestern Ontario a great deal of pulp wood has been taken out during the present peeling season by settlers, farmers and contractors. The peeling period ends with the first or second week in August and the cut will be larger than last year. Prices are about the same as twelve months ago, but it is expected there will be a better demand later. At present shipments are not heavy and only a moderate amount is moving out by rail and boat.

Notes and Jottings of the Industry

D. F. Robertson, general manager of the Canadian Paperboard Company, Montreal, and Mrs. Robertson, are spending a holiday at Pictou, Ont.

A. G. Allen, of the sales staff of Paper Sales, Ltd., Toronto, is holidaying at the Lake of Bays district, Muskoka.

W. P. Bennett, late head of the Rudd Paper Box Company and former president of the Canadian Paper Box Manufacturers Association, is spending a few weeks with his sons on a trip through the Adirondack Mountains.

Fred Lock, of the sales staff of Canada Paper Company, Toronto, is enjoying his vacation at Wasaga Beach on Georgian Bay.

George Burns, New York representative of the Keith Paper Mills, Turners Falls, Mass., was a visitor to the Toronto trade recently.

H. G. French, of the United Paper Mills executive staff, Toronto, has returned from spending his holidays at Lake of Bays district.

H. F. E. Kent, managing director of W. J. Gage & Co., manufacturing stationers, Toronto, who is a former president of the Canadian Pulp and Paper Association, has returned to the city after passing a couple of weeks at Keswick, Lake Simcoe.

A. Huntley, manager of the Hodge-Sheriff Paper Company, Toronto, is having a few days rest at Wasaga Beach, Ont.

A. G. Parker, secretary-treasurer of W. J. Gage & Co., manufacturing stationers, Toronto, and family are holidaying at Ora near Lake Simcoe.

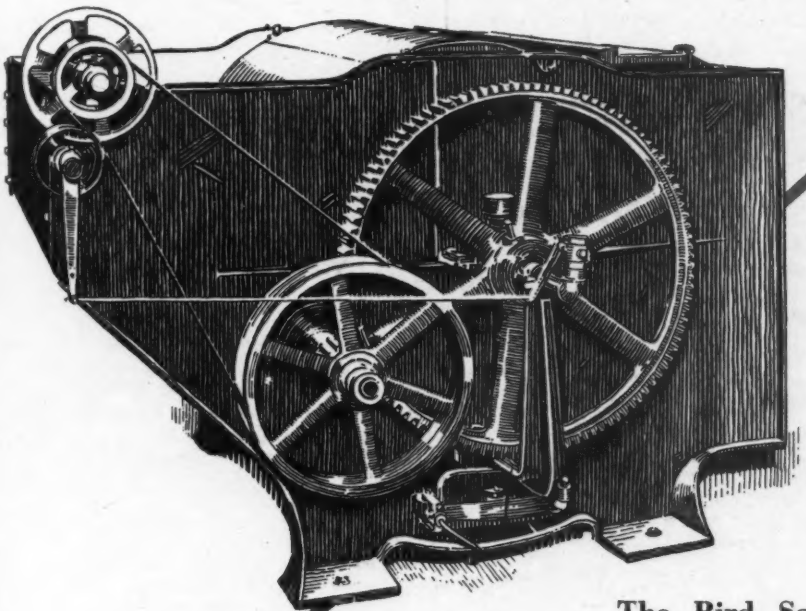
Benjamin Logie, of the sales staff of the Lincoln Pulp and Paper Mills, Toronto, and family, are spending their vacation at Jackson's Point, Ont.

James Logie, who represents the Canadian Paperboard Company, Toronto, is among the summer visitors at Jackson's Point for a few weeks.

Arthur Morrice, of the Fred W. Halls Paper Company, Toronto, is sojourning in New York City, and other points east.

H. B. Donovan, sales manager of the Canada Paper Company, Toronto, is spending a few days in Ottawa, where he is attending the World's Poultry Congress. Mr. Donovan is an ardent poultry fancier and is widely known in this connection.

A simple pulp saver



The BIRD SAVE-ALL

The Bird Save-All operates automatically and without auxiliary equipment in such a way that a high percentage of the solids are removed from the white water and returned immediately for re-use. It requires no attention. It costs practically nothing to operate and maintain.

Isn't this what you want in a Save-All?

BIRD MACHINE COMPANY **BIRD** SOUTH WALPOLE, MASS.

MACHINERY

1027

I. P. Co. Expands In Field of Public Utilities

The International Paper Company is not only the world's largest manufacturer of paper but one of the leading owners of water power on the North American Continent, says the *New York Evening Post*. During the last few years a great change has taken place with respect to its interests in water power exploitation, with the consequence that a very large share of its business now falls within the public utility class. This was emphasized within a few days by announcement that the company had obtained working control of the New England Power Association, the largest distributor of electric power in New England, controlling twelve operating companies.

However, the company's water power interests have been expanded not only by purchase of control in existing utility companies but through original development, much of which has centered along the Gatineau River in Canada.

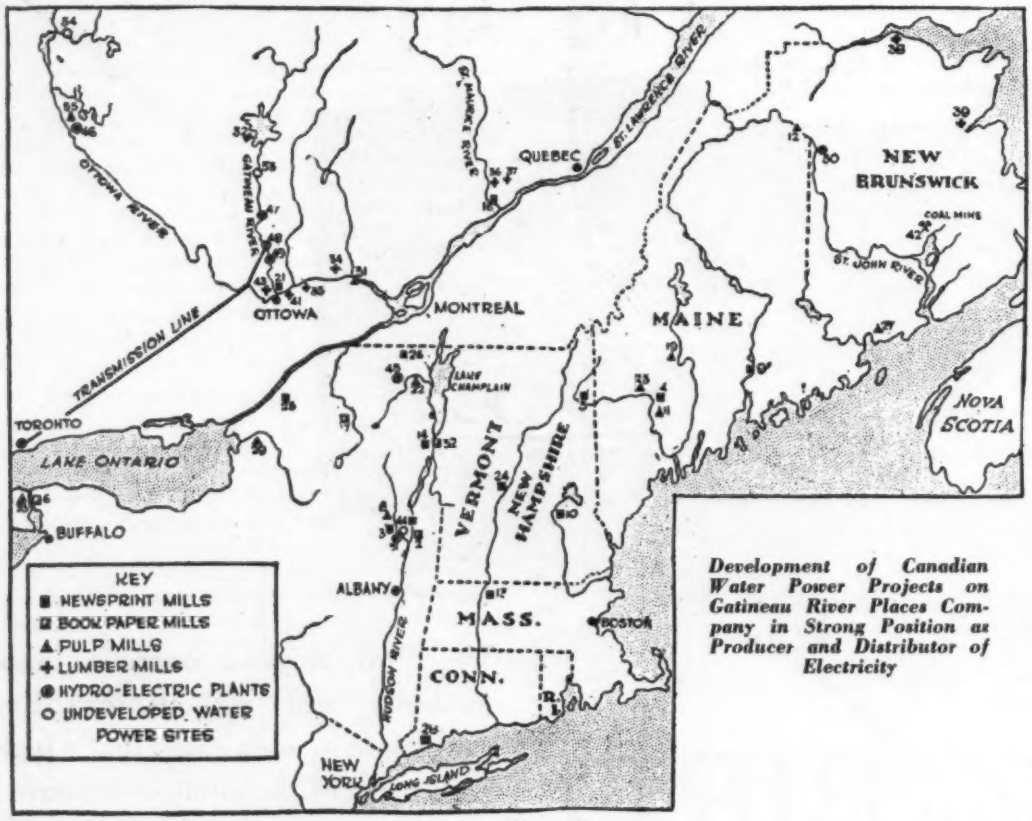
Pursuing a definite policy of building a substantial foundation for a more prosperous future, President A. R. Graustein and his associates in direction of the company's policies have virtually reorganized the paper manufacturing division of the business within the past two years, increased its capacity, built more efficient mills and reduced production costs by transfer of the business from scattered high-cost units in the United States to concentrated low-cost units in Canada.

Meanwhile the company has been brought through a period of deflation in the price of news print to physical and financial conditions characterized by bankers as greatly improved.

As owner of twenty-three pulp and paper mills, including some of the largest and most efficient in existence, the International Paper Company has a production capacity more than double that of any other company in North America. These mills had an output in 1925 of 837,943 tons, of which 60 per cent was in news print.

Embarking upon a policy dictated by the trend of economic developments, the company has been for three years concentrating its news print activities in Canada. This is in recognition of the fact that the company's news print mills in the United States could not compete with the cheap and abundant Canadian wood supply and water power.

Through acquisition of the Riordon-Gatineau properties on and adjacent to the Gatineau River, a branch of the Ottawa, in Quebec, the International Paper Company has become the owner of one of the largest timber land holdings in the Dominion. Increased still further by subsequent purchases, its holdings in the United States and Canada now aggregate in freeholds and leases 13,587,000 acres, an area larger than those of Massachusetts, New Hampshire and Connecticut combined and are estimated to contain more than 51,700,000 cords of pulpwood.



Development of Canadian Water Power Projects on Gatineau River Places Company in Strong Position as Producer and Distributor of Electricity

INTERNATIONAL PAPER PROPERTIES

PAPER AND PULP MILLS—1. Glens Falls; 2. Port Edward; 3. Hudson River; 4. Otis; 5. Glen; 6. Niagara Falls; 7. Camden; 8. Curtis; 9. Webster; 10. Winnipiseogee; 11. Livermore; 12. Van Buren; 13. Montague; 14. Lake George; 16. Three Rivers; 17. Piercefield; 19. Solon; 20. Bastrop; 21. Gatineau; 22. Cadyville; 23. Riley; 24. Wilder; 25. De Grasse; 26. High Falls; 27. St. George; 28. St. George; 29 Watertown; 30. Louisiana; 31. Hawkesbury; 32. Ticonderoga; 33. Merritton; 55. Kipawa. HYDRO-ELECTRIC DEVELOPMENTS—44. Feeder Dam; 45. Cadyville; 46. Kipawa; 47. Paugan; 48. Chelsea; 49. Farmers; 50 Grand Falls. LUMBER PLANTS—34. Calumet Saw; 35. Rockland Saw; 36. St. Maurice Saw; 37. Batiscan Saw; 38. Dalhousie Saw; 39. Douglastown Saw; 41. New Edinburgh Saw; 43. Hull Saw. MISCELLANEOUS—42. Minto Coal Mine; 51. Sherman Island; 52. Baskatong Storage; 53. Maniwaki Power Site; 54. O'Brien Power Site. In addition to the above the company has two Kraft paper mills at Bastrop, La., and one at Camden, Ark., and extensive woodlands in Newfoundland not shown here.

KENWOOD

WOOL PRODUCTS

The Mill at Albany

The Mill at Arnprior

The Kenwood Mark on a Papermaker's FELT or JACKET is assurance that it is the best for its purpose that can be produced anywhere in the world.

F. C. HUYCK & SONS

KENWOOD MILLS
ALBANY, N. Y.

KENWOOD MILLS LTD.,
ARNPRIOR, ONTARIO

Evidence of the extent to which the property is concentrating in Canada is best afforded by its construction of the Gatineau mill of the Canadian International Company with a daily capacity of 600 tons. This is expected to be complete in August. In addition the company plans to erect another news print mill or mills in New Brunswick, as part of a program for power development at Grand Falls on the St. John River where the company already has under construction a plant with a designed capacity of 80,000 horsepower of which 60,000 is to be installed initially.

Power Plants in Gatineau

Simultaneously the International Paper Company's subsidiary, the Gatineau Power Company, is constructing three power plants on the Gatineau River with a designed generating capacity of 530,000 horse power. Two of these already are delivering power. Long term contracts have been made with the Ontario Hydro-Electric Power Commission and others for the use of 300,000 units of this power.

Owns Large Kraft Paper Mills

Expansion in another direction promises to give the International a daily capacity of 450 tons of kraft paper within a short time. This has been or will be accomplished through the acquisition of the Bastrop Pulp and Paper Company of Bastrop, La.; doubling its capacity, purchase of the new Louisiana Pulp and Paper Companp kraft mill, also in Bastrop, and construction of a third kraft mill at Camden, Ark.

Sound Financing

Meanwhile, the International Paper Company's credit has been expanding along with its properties, due to sound financial methods. Its capital structure as of April 30 last, after giving effect to current financing, comprised: Consolidated funded debt, $122,154,247; 7 per cent cumulative preferred stock, $47,640,000; 6 per cent cumulative preferred stock $2,652,000; no par common stock, 1,000,000 shares.

On conclusion of its recent offerings of preferred and common shares, new capital brought into the company and its wholly owned subsidiaries since October, 1925, will aggregate $110,000,000, of which $37,500,000 was obtained by the Gatineau Power Company for water power development. The paper mill expansion of the past two years has been accomplished through the issue of common and junior securities. No issue of first mortgage bonds has been made on new paper properties.

The company's balance sheet of April 30, after giving effect to current financing and excluding Gatineau Power Company, shows a strong position as regards working capital, with current assets of $42,948,936, or more than six times its liabilities.

In pursuance of an accounting procedure which is regarded as highly conservative, it is estimated that at the present rate of depreciation the charges on the company's mills will be entirely written off in sixteen years.

Increased Earnings

Earnings from power and utility operations are expected to total about $1,200,000 in 1927, against $670,000 in 1926, and in a few years to bulk much larger. It is the belief of interests close to the company's management that in six or seven years its power and utility program will have evolved to such an extent that earnings from that source will cover subsidiary power companies' charges and leave a balance approximating the present fixed and contingent charges on the parent company's bonds and preferred stock now outstanding, amounting to some $7,300,000.

Net Profits Available

Net profits available for common stock, after all charges and preferred dividends in the first five months of this year, amounted to $754,000, against a deficit of $95,000 in the first five months of 1926. It is estimated that net available for common in the six months ended June 30, 1927, will amount to approximately $750,000 more than the $178,000 shown in the same period of 1926.

Summer Meeting New York Section of Foresters

There will be an unusually large representation from the pulp and paper industry at the summer meeting of the New York Section of the Society of American Foresters, which is to be held at the summer camp of the New York State College of Forestry, at Cranberry Lake, N. Y., on August 29-30.

O. M. Porter, assistant secretary of the American Paper and Pulp Association, who is chairman of the Section, states that particular interest had been aroused in the pulp and paper industry by the two topics scheduled for discussion at these meetings. The first of these is a plan for the formation of a corporation to bring about the planting of pulpwood species on abandoned farm lands in New York and Pennsylvania. A comprehensive scheme has been drafted by the forester of one of the larger pulp and paper companies and will be discussed at the meeting.

The preliminary outline of this scheme has aroused much interest on the part of pulp and paper manufacturers and Mr. Porter has received requests from some of them to have representatives present who are not members of the New York Section.

There will also be discussion of the McSweeney Bill which was introduced at the last session of Congress. This bill is designed to secure the economical conduct of forest research in the Department of Agriculture and is an outgrowth of the comprehensive National Program of Forest Research prepared last year by a special committee of the Society of American Foresters. Because of the importance of forest research to the pulp and paper industry, this bill is of particular interest.

Box Board Firm in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 1, 1927.—Summer dullness predominates in the paper market. Prices, however, remain generally firm. Some business is being transacted all the time, and several members of the trade even say that their business is better. One of the dealers remarks that he never saw the market for box board any firmer than it is now, and that in fact the demand in some quarters at least is improving. The trade is looking for a good business in box board this fall. A number of the paper mills are still shut down for a few weeks, so as to overhaul their machinery for the expected fall business. Buying as a rule is on a hand-to-mouth basis.

The same quiet prevails in the market for old papers, bagging, and new and old domestic rags. The prices in paper stock are practically the same as they were a week ago except in a few cases. Quotations on roofing stock have been fluctuating more or less of late, and the more recent changes have been downward. No. 1 grade is quotable at $1.50 to $1.60 and No. 2 at $1.38 to $1.48. It is stated that the No. 4 grade is quotable at a higher price than No. 3. No. 3 is quotable at 96 cents as the minimum figure, and No. 4 at $1.10 for the minimum figure.

REX AND KEYES MERGE

(*Continued from page 25*)

years of the Keyes Fibre Company was second only to Mr. Keyes' ability in bringing about the success of the company. Mr. Brooks has been president of the company since the death of Mr. Keyes in 1914. Mrs. Jennie C. Keyes of Fairfield, widow of Mr. Keyes, has been vice president of the company since 1914.

Mr. Keyes' only child, the late Mrs. George G. Averill, became heir to a large part of the Keyes Fibre Company stock upon the death of her father. Her Husband, Dr. George G. Averill, gave up in 1910 a lucrative medical practice in Cambridge, Mass., to devote his entire time in assisting Martin L. Keyes to develop this business. Dr. Averill whose birthplace is Lincoln, Maine, has for many years been the controlling stockholder and Treasurer and General Manager of the company. Mrs. Averill died in 1918 during the influenza epidemic.

WANTON WASTE Stop It!

The Briner Economizer

is the logical and accepted method of eliminating this costly waste of heat. Chief advantages derived from its operation are:

Reduced cost of steam per pound of paper.

Reduced load on boiler and elimination of peaks during extreme cold weather.

Increase in both quantity and quality of production.

Failure to detect all the hidden sources of waste in a paper mill is to be expected in the stress of capacity production.

But the obvious and continuous waste of needed heat that requires effort and expense to produce — is both deliberate and disastrous.

Every mill man knows that a sufficient amount of heated air is absolutely necessary in the operation of the machine room. He knows that it costs real money for every thousand pounds of steam that heats this air. He knows that the vapor from his machines carries off vast quantities of heat units through the vents to the ouside air —as waste.

Failure to take steps to reclaim these heat units and to fully utilize them—is permitting excessive steam cost and wanton waste.

STOP IT!

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ROSS ENGINEERING OF CANADA, Limited
New Birks Bldg.—Montreal

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Sacramento, Cal.—The California Development Company, Merchants' Exchange Building, San Francisco, Cal., is having plans prepared for the construction of a new pulp mill on site about 5 miles from this city, in the South Sacramento district, to be equipped for an initial output of about 50 tons of finished material per 24 hours. It is reported to cost in excess of $350,000, with machinery. C. A. Kieren, Portland, Ore., is engineer for the project. Summer L. Bump is president of the company.

Chicago, Ill.—The Protectu Bank Note Corporation, manufacturer of special paper goods, has concluded arrangements for a lease of a one-story factory now in course of erection at the northeast corner of Schubert and Karlov avenues, and will establish a new plant at this location as soon as the building is ready for occupancy, scheduled at an early date. The property has been taken over for a period of ten years.

Stevens Point, Wis.—The Whiting-Plover Company has awarded a general contract to the C. R. Meyers & Sons Company, 50 State street, Oshkosh, Wis., for its proposed new one-story addition, to be 48 x 130 feet, designed primarily for warehouse purposes. The structure will be rushed to completion.

Chicago, Ill.—The Chicago Mill Paper Stock Company, 900 Ogden avenue, is said to be planning the early rebuilding of the portion of its plant, destroyed by fire, July 22, with loss reported at close to $150,000, including building, equipment and stock.

Oswego, N. Y.—F. L. Carlisle & Co., Watertown, N. Y., with headquarters at 49 Wall street, New York, operating the Northern New York Utilities and other public utility properties, is said to be at the head of a project to construct and operate a mill at Oswego, for the manufacture of insulating board products. As now projected, the plant will comprise from six to eight operating units, and is reported to cost close to $1,000,000, with machinery. F. L. Carlisle heads the company.

Amarillo, Tex.—The Amarillo Paper Company, 303 East First street, is said to have completed plans for the erection of a new building for warehouse and distributing service, reported to cost more than $20,000, and will proceed with work at once.

Houston, Tex.—The Commercial Investment Company, Post-Dispatch Building, Houston, is interested in a project to construct a pulp and paper mill, and is desirous of getting in touch with manufacturers of machinery and equipment both for wood pulp and finished paper production.

Mosinee, Wis.—The Wausau Sulphate Fibre Company, Mosinee, has work under way on a new addition to its local mill, for which contract recently was let to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., and purposes to have the structure ready for service at earliest date. It will be one-story, 70 x 110 feet, and will be equipped for an addition to the finishing division.

Wilmington, Del.—The Beaver Valley Paper Company, with mill in the Beaver Valley district, has concluded negotiations for the purchase of a tract of about 4 acres of land in the vicinity of its plant on the Brandywine Creek Road, for a consideration stated at $12,000, and is reported to be planning expansion.

Jacksonville, Ark.—The Arkansas Paper Roll Plug Company is said to be planning the early rebuilding of the portion of its mill destroyed by fire, July 22, with loss reported at close to $22,000. The reconstruction will cost close to a like sum, with equipment.

Buffalo, N. Y.—The Buffalo Carton Corporation, recently formed under state laws with a capital of $50,000, and 1,000 shares of common stock, no par value, is said to be planning the early operation of a local plant for the manufacture of paper boxes, cartons, etc. The new organization is headed by Edward E. Kale, Henry C. Seil and Michael Reinhardt, 577 William street, Buffalo. The corporate representative is A. R. Conley, Andrews Building, Buffalo, attorney.

Attleboro, Mass.—Charles T. Main, Inc., 201 Devonshire Building, Boston, Mass., engineer, has plans under way for a new paper mill unit at Attleboro, for a campany whose name is temporarily withheld. It is estimated to cost close to $100,000. It is understood that bids will be asked on a general contract at an early date.

Chillicothe, Ohio—The Chillicothe Paper Company has awarded a general contract to the H. K. Ferguson Company, 4900 Euclid avenue, Cleveland, Ohio, for the erection of its proposed new addition, to be two-story, 42 x 540 feet, with L-extension, 81 feet wide. Excavation has been started by Brewer & Brewer, Chillicothe, contractors for such work. Hector R. McVicker is president; E. F. Bearce is company engineer.

Oklahoma City, Okla.—The Trave-Taylor Company, Inc., has been formed with a capital of $150,000, to take over and consolidate the Trave Company, 319 West Second street, manufacturer of paper and stationery specialties, the Walker-Taylor Company, 212 West First street, operating a printing and lithographing plant, the Leftwich-Smith Monotype Company, 317 North Harvey street, and the Oklahoma Envelope Company, 319 West Second street, manufacturer of envelopes, etc. The consolidated organization plans extensive operations and increase in present output of paper goods. It is purposed to construct a one-story top addition to the present Second Street works, and plans will soon be consummated; additional equipment will be installed. Dudley O. Taylor is secretary and treasurer of the new organization.

Moss Point, Miss.—In connection with its lumber operations for pulp supply, the Southern Paper Company, with local mill, is reported to be planning the early reforestation of a tract of about 50,000 acres of land. The company is running under a full capacity schedule both in its pulp and paper-making divisions, and will continue on this basis for an indefinite period.

Somerville, Mass.—The Consolidated Paper Bag Company, Somerville, has begun foundations for its proposed new plant addition, and will proceed with superstructure at an early date. The structure is reported to cost about $50,000, with equipment. A general contract has been let to Nathan Hurwitz, 294 Washington street, Boston. The Funk & Wilcox Company, 26 Pemberton Square, Boston, are architects.

The Superintendent

Figures It In Minutes Lost

An Efficiency Man

Figures It In Dollars

And The Stockholders

Suffer A Loss In Dividends

When Your Breaker Beater Is Stopped To Remove The Junk

It may mean only a few minutes once or twice a day, but, those few minutes spent in cleaning the beater mean loss of production and extra man power. The MURPHY JUNK REMOVER will automatically take all foreign material out of any style beater or breaker beater continuously. Eliminate loss from shutting down, avoid trouble from foreign material getting into the pumps and Jordans.

Install A Murphy Junk Remover

And You Will Never Have To Clean Your Beater—Not If It Runs A Hundred Years

The Griley-Unkle Engineering Company

Fort Wayne, Indiana

One of our engineers will fully explain the Murphy Junk Remover to you and prove how it will save money. There will be no obligation.

Obituary

Robert Gair

Robert Gair, president of the Robert Gair Company, of Brooklyn, paper-box and bag manufacturers, died on Sunday evening in his summer home, Dunedin-on-the-Dunes. Death was caused by apoplexy and came on Mr. Gair's eighty-eighth birthday.

Mr. Gair, unusually robust throughout his long life and active virtually to the last in the direction of the company which he founded, began to display symptoms of ill-health two weeks ago. Although physically much the same as he always had been, he appeared dazed at times, these attacks, however, soon passing.

Mr. Gair leaves a wife, Mrs. Emma Eyre Gair, whom he married fifty-nine years ago; two sons, Robert Gair, Jr., and George W. Gair, and four daughters, Dr. E. Florence Gair, Miss M. Elizabeth Gair, Mrs. William Gill and Mrs. Jessie Gair Feeney.

Mr. Gair was born in Edinburgh, Scotland, on July 31, 1839, the son of James Gair, a plumber. When Robert was 14 years old, the family emigrated to Brooklyn, and the son was apprenticed to learn his father's trade. When young Gair was 21 he cast his first ballot for Abraham Lincoln.

He was a veteran of the Civil War, having served through the great conflict with the Seventy-ninth Highlanders of the Ninth Corps of the Army of the Potomac. He commanded the regiment at the Siege of Knoxville and at Spottsylvania, and when the war ended only 200 of the original 1,087 men of the Brooklyn volunteer regiment survived.

After the war Mr. Gair went into the paper-box and bag business. Through his inventions and through the development of his company he is credited with having changed the appearance of stores in many lines of retail trade. In the old days foodstuffs, to cite only one line, were in bulk and were exposed in the stores in barrels or wooden boxes. Mr. Gair's invention of folding boxes and of cartons were responsible for bringing about this welcome change.

He started in business with a capital of $10,000 and located in 1864 in a small loft at 163 Chambers street, Manhattan. The business prospered to such a great extent that it was soon necessary to remove to much larger quarters.

His revolution of methods of retailing goods came as the result of an accident. In 1870, while running paper bags through a printing press to print the label, he noticed that every bag was slit across its face. He examined the press and found that a type rule had been set too high and that it was cutting, as well as printing, the bags. Mr. Gair saw that he could cut and print a bag with one operation, so he invented machinery by which paper and pasteboard is creased and cut and printed in one operation. Shortly after this he made the first folding boxes and the idea was an instant success.

Since then the business has grown by leaps and bounds. There are six Gair factories scattered through the country, the largest being that in Brooklyn, which covers five blocks at the foot of Washington street. Ten years ago he inaugurated the policy of all-day closing on Saturday during the Summer months. He did this, he explained, to give his 3,000 employees a chance "to work in their gardens." The half-day workday of Saturday was distributed in slightly longer hours over the five week days.

Mr. Gair died many times a millionaire. In 1913 an insight into the profits of his company was obtained when he offered half of a $2,000,000 issue of preferred stock to the public. He and his sons retained half of the preferred issue and all of the $5,000,000 in common. It was learned then that for the seven years prior to the offering the net earnings on preferred stock had averaged 13½ per cent. In the year ended January 31, 1913, the net earnings were almost 21 per cent.

Pulp Mill Backers Outline Program

SACRAMENTO, Cal., July 28, 1927.—The purposes and program of the Sacramento Development Company, which proposes to build a $700,000 sulphite pulp mill on the Freeport Boulevard, near Sacramento, were outlined in detail by officials of the pulp mill firm at a special membership meeting of the Sacramento Chamber of Commerce in the Hotel Senator recently, when motion pictures showing the manufacture of pulp and cotton were shown. The company officials include Sumner L. Bump, president; Kenneth H. Millican, secretary, and R. M. Conley. A film depicting the processes in making rayon, or artificial silk, also was to be shown, but could not be obtained at the last moment.

George W. Peltier, president of the chamber of commerce, welcomed the new industry to Sacramento, asserting that the development would serve as a magnet in attracting other businesses here to enjoy the superlative advantages afforded for industry by Sacramento.

This point was stressed by Mr. Millican in a talk in which he outlined the plans of the development company. He declared that Sacramento is the only city in California offering to industry the advantages of water, rail and highway transportation, power and the right kind of climate necessary for a rayon factory, which may be established here by eastern interests as a result of the pulp mill venture.

Professor C. G. Hyde, head of the sanitary engineering department of the University of California, also spoke, declaring that a survey made by him indicated that no injurious effects would result from the company emptying into the Sacramento River the waste matter derived in the pulp making processes.

George M. Cornwall, editor of *The Timberman*, expressed gratification at the plans of the Sacramento Development Company, stating that the plant will be large enough at the start to insure its success.

At a conference between officials of the development company and members of the chamber's industrial committee, which immediately preceded the general meeting, Ernest P Lowe, Boston paper manufacturer, stated the possibility that a paper plant may be established here to utilize some of the pulp made by the sulphite pulp mill.

The development company today took a lease on a suite of rooms in the Farmers and Mechanics Bank Building on Eighth street, between J. and K streets.

Construction Going Forward at Grand Falls

Construction is progressing on the Grand Falls, New Brunswick, hydro-electric development of Saint John River Power Company. Work has been begun on the forms for the concerete lining of the pressure tunnel. Work has also commenced on the west end of the cofferdam for the main dam. Preliminary work has been started on the erection of steel penstocks.

The hydro-electric plant will be the largest power development in the Maritime Provinces of Canada. Three units of 20,000 horsepower each will be installed initially in the powerhouse.

All of the common stock of Saint John River Power Company is owned by International Paper Company.

Missisquoi to Have Representative in Chicago

Announcement has just been made by the Mississippi Pulp and Paper Company of Sheldon Springs, Vt., that on September 1 the selling arrangement for their products through the Forsythe Paper Company of Chicago, will be discontinued. It is the intention of the Missisquoi company to have its own special representative in the Chicago territory so as to insure closer connection between the home office and their merchant distributors in the western territory. This is in keeping with the company's newly established sales policy of opening offices in the larger distributing sales centers, thereby being in direct and closer contact with their customers.

163 Years of Crane Satisfaction
That's One User's Endorsement

Working their cranes most of the time on rapid bucket work but with plenty of hook loads and switching of cars thrown in, this user's Brownhoists show a total of over 163 years of service.

When you consider that these cranes range from 8 to 16 years old and are all still in good working condition, you get an idea of the service users receive from their Brownhoists. Working as a link in a production chain it is of primary importance that a crane stand up and that's what Brownhoists are built to do.

Whatever kind of materials you handle—sand, gravel, stone, coal, iron or scrap—a Brownhoist can effect real savings for you. Maybe a creeper crane will do your work, or perhaps an eight-wheeler will be needed, anyway you can choose from a complete line of Brownhoists. Whenever you're ready we will be glad to help you lick your handling problems.

A modern 25-ton capacity Brownhoist with Brownhoist Clamshell.

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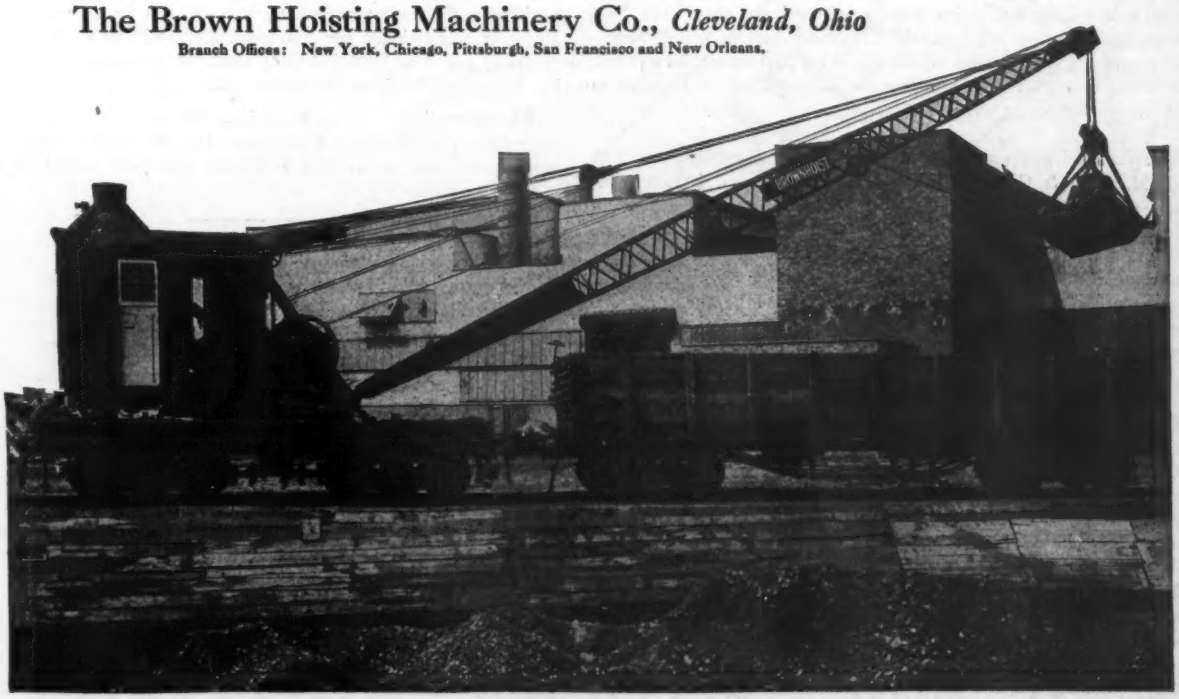

BROWNHOIST

GOOD MATERIAL HANDLING MACHINERY

New York Trade Jottings

J. Norman Spawn, educational director of the Champion Fibre Company, Canton, N. C., is in New York this week.

* * *

The Robert Gair Company, of Brooklyn, N. Y., has applied for membership in the American Paper and Pulp Association.

* * *

The National Association of Gummed Tape Manufacturers, 18 East 41st street, New York, is scheduled to meet at Niagara Falls, Canada, on September 14 and 15.

* * *

Nils Sandman, paper mill engineer and graduate of Helsingfors University, Finland, arrived in New York recently, and will make a close study of American practice during his stay in this country.

* * *

The next meeting of the Binders Board Manufacturers Association is to be held at Fitchburg, Mass., on September 2. The headquarters of this organization is at 18 East 41st street, New York.

* * *

The Dorr Company, engineers, of 247 Park avenue, New York, announce that A. Anable, for several years connected with its equipment sales department, on August 1 was appointed to the position of Director of Publicity for the organization.

* * *

The Oliver Continuous Filter Company, Inc., announces that, due to a greatly increasing volume of business, they have been compelled to secure larger quarters for their storehouse and laboratory, and are now located at 445-457 West 31st street, New York. It has also been found necessary to increase the office space at 33 West 42nd street, New York.

* * *

D. Palmieri announces that he has severed his connection with M. M. Elish & Co., general paper merchants, and is now connected with Charles A. Mastronardi, Inc., packers and dealers in paper and paper manufacturers supplies, of 51 Roosevelt street, New York. Mr. Palmieri is an experienced paper salesman, having been connected with D. Palmieri & Sons for four years, with Spero & Palmieri for two years, with Firneno Brothers for six years, and with the Box Board and Lining Company for twelve years.

* * *

Texas Gulf Sulphur sold at a new record level last week. According to the financial editor of the *New York American*, the big interests are buying this stock and Allied Chemical has a large amount of it because of its sulphur requirements. Developments going on in Texas Gulf Sulphur foreshadow higher prices. It would not be surprising if the Mellon and Du Pont interests were accumulating this issue just as they have Steel and Allied Chemical. Texas Gulf has come into control of the biggest sulphur deposits in the world and with the strong backing should reap tremendous benefits. It has acquired a lease from the Gulf Oil Company, a Mellon controlled corporation, to produce on a big scale and earnings should show a phenomenal increase because of the growing demand for sulphur, used in 90 per cent of all manufactured goods.

Griley-Unkle Recent Installations

The Griley-Unkle Engineering Company of Fort Wayne, Ind., is experiencing a very busy season as is evidenced by their report of recent installations of its various products as follows: Unkle Pulp Extractors at DePere Paper Manufacturing Company, West DePere, Wis., and Pacific Coast Paper Mills, Bellingham, Wash; the Unkle Color System at Paraffine Companies, Port Angeles, Wash., and Unkle Roll Raisers at Auglaize Boxboard Company, St. Marys, Ohio.

Good Report Expected From I. P. Co.

International Paper Company report for the second quarter of this year will be published shortly and can be expected to show substantial improvement over a year ago, says the Wall Street Journal. In line with the showing for the first quarter of the year as compared with the same period in 1926; earnings of betewen 75 cents and $1 a share on the 1,000,000 shares are forecast. First quarter of this year showed net profits after all charges of $994,223 or 82 cents a share on the 500,000 shares of common outstanding at the end of the quarter as compared with $261,708 a year ago While in the first half of 1926 net profits for preferred and common amounted to $1,232,215, this item for the first six months of this year will probably be well above the $2,000,000 mark after extremely liberal charge-offs for depreciation, etc.

However, in connection with comparison of earnings statements for the first six months of this year compared with a year ago, three important developments have recently taken place, doubling of the common share capitalization by sale to stockholders of 500,000 additional shares, increased in the common dividend at the June board meeting from $2 annually to $2.40 annually and sale of $15,000,000 additional preferred stock. To gain the true picture of International Paper finances, it must be borne in mind that the huge sums placed into expansion and purchase of additional properties are now beginning to be reflected in increased earning power so that it is logical to expect that a continuous increase in earning power will be shown. Sources in close touch with the management point out that earnings of at least $2.50 a share on the 1,000,000 shares of common stock outstanding are anticipated this year and projecting the estimate further, that $4 can be shown in 1928. However, any estimate for 1928 must necessarily be made with reservations but it at least indicates what the management is expecting from the additional properties taken on.

It is also pointed out by those in touch with the situation that the company anticipates net earnings after all charges from public utility operations of around $1,200,000 this year compared with $670,000 in 1926.

News of the Holyoke Mills

HOLYOKE, Mass., August 2, 1927.—The annual closing of the headgates to the canals of the Holyoke Water Power Company occurred this week from Friday until Monday. Only minor repairs were made by the mills as a whole. The Whiting Paper Company did a large job of floor renovation at its No. 2 mill. Quite a number of mills in other industries closed down for a full week or 10 days. The canals were full again yesterday morning at 6.

The Morart Paper Company which received a charter in Boston last week from the state will begin in a small way in the manufacture of paper specialties in a Holyoke factory it was stated today. C. H. Barr of Holyoke is treasurer of the new concern and M. J. Moriarty of South Hadley Falls is the president.

Special Sailings for the Leipzig Trade Fair

American buyers who cross the Atlantic to attend the Leipzig Trade Fair have become so important a factor in tourist travel that special steamer sailings are arranged for their convenience. More than 1,500 buyers, representing a wide variety of interests, journeyed from the United States to Leipzig to attend the Spring Fair. The *S.S. Berlin* of the North German Lloyd will sail from New York August 16 to enable visitors to reach Leipzig for the Fair which opens August 28th, closing September 3. The dates of the great Industrial Fair are so arranged that a visit to Leipzig can be readily fitted into an ordinary European summer trip. Leipzig is centrally located at the focus of a great system of railroad and commercial air lines, connecting it with the European capitals and pleasure resorts.

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Power Plant Section

Reducing Power Costs Through Unit Treatment

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Anti-Friction Bearing Dividends

Combating Friction Materially Reduces Production Costs

The obvious is quite frequently the most difficult to demonstrate. or example, the reduction of journal friction is universally conceded to be an important factor in the conservation and economical use of power, yet to place any really dependable value on anti-friction bearings in the paper mill is exceedingly difficult. In fact, if an attempt is made to do so from the angle of economical use of power alone, the result is very apt to be quite misleading and to fail utterly in establishing the true value of such bearing refinement. At the same time, the many indirect economies which are very certain to be realized and which may outrank from a dollar and cent point of view the economy of more effective power utilization are of such intangible character as to defy any proper or definite valuation.

The chief advantage, which may not be apparent for a considerable time, is the dependability of anti-friction bearings, that is, their pronounced freedom from breakdowns and interruptions. In an industry where each step in productive operation is dependent upon the preceding one, as in paper making, such insurance is worth almost any price, for one faulty bearing may precipitate a shut-down. It is well to appreciate this, for it is well nigh impossible to form any opinion of the investment cost entailed to re-equip machinery with anti-friction bearings without full knowledge of existing conditions.

Investment Entailed

One prominent manufacturer of roller bearings states that where heavy bearing pressures occur, any added investment entailed for antifriction bearings is slight and that not infrequently anti-friction bearings in such positions actually cost less than the plain bronze bearings they are apt to replace. The claim is also made that so far as actual installation cost is concerned it is not more than would be contracted for a good plain bearing job. A leading manufacturer of paper converting machinery, who today furnishes about 80 per cent. of the machinery he manufactures with ball bearings, finds that such refinement adds approximately 25 per cent to the cost of bearing installations of the plain type. He estimates that these bearings reduce the power demand of his machines by at least 35 per cent, a pretty good return on the added investment. Furthermore, on parts of machines where it is difficult to secure accurate bearing fits and plain bearings have to be scraped and spotted because of speed. It is found that antifriction bearings are just as economical to install as bearings of the plain type.

Somewhat confusing as such cost statistics may appear to the accountant and controller of the finances in a paper mill, men who are accustomed to deal with and to demand concrete monetary units when it comes to passing upon the advisability of contracting any expenditures and who may be said to rely upon elementary arithmetical computations alone, the fact may be accepted that any additional investment entailed for an anti-friction bearing installation is in reality such a minor consideration that it can be disregarded entirely. In power saving; in reductions in lubrication and bearing maintenance expenses; in the avoidance of certain labor charges; in reliability of service; in indirect and often intangible economies effected in machine operation; and in the conservation of supplies of many and varied kinds the returns are so very material that they soon wipe out any and all possible investment expenses and earn handsome reductions in overall manufacturing costs.

Some Paper Mill Attitudes Toward Anti-Friction Bearings

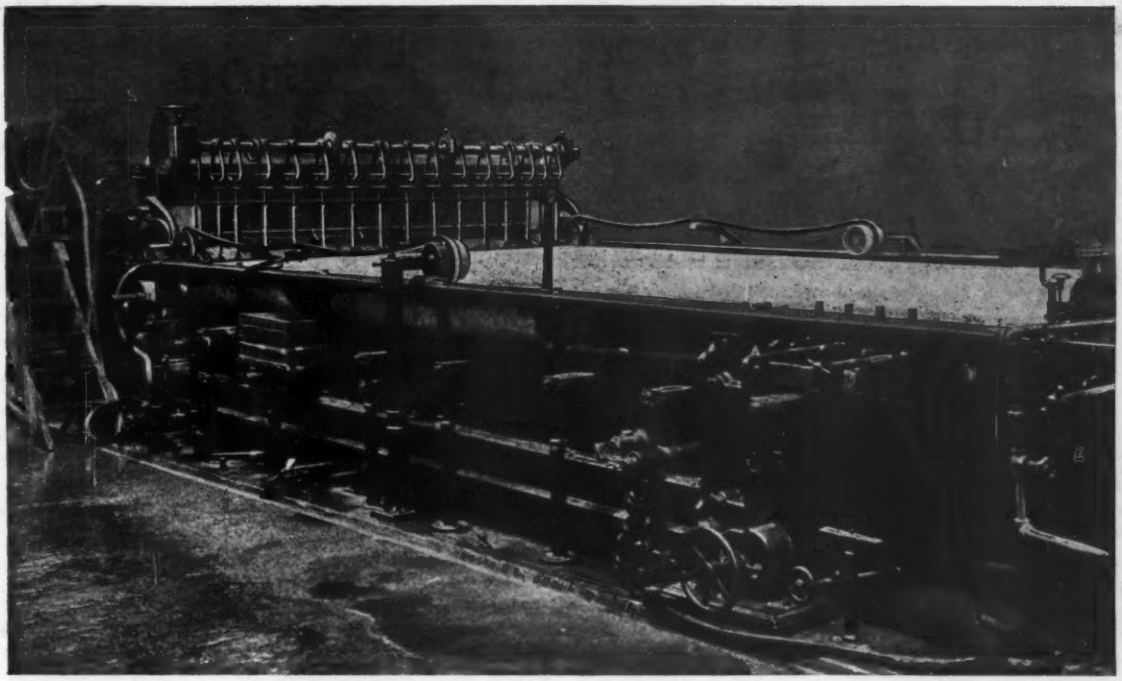
These are some of the many considerations which progressive manufacturers of paper making machinery have studied for their paper mill customers, with, perhaps, little real appreciation on the part of the paper mills. At least, this would appear so from some of the developments in the course of a survey of some paper mills for pertinent statistics regarding the economies effected through the adoption of anti-friction bearings to paper making machinery. Manufacturers of such equipment and producers of anti-friction bearings claim—conservatively they state—annual savings on a fully anti-friction bearing equipped machine of from 15 up to 35 per cent or more.

One of the prominent paper mills, which had installed a new Fourdrinier, the breast rolls of which the builders of the machine stated ran on anti-friction bearings, advised that while the manufacturers of the machine had intended installing such bearings on the breast roll the bearings did not arrive in time and the machine was started with plain bronze bearings. The operation of the Fourdrinier equipped with the plain bearings has been so satisfactory that to date the anti-friction bearings have not been substituted.

This experience is probably not unique and it can hardly be construed as high commendation for anti-friction bearings. It speaks volumes for the quality of the Fourdrinier, however, and for the care and attention exercised by the paper mill in keeping its equipment in good shape. The only question is—would the substitution of the anti-friction bearings, over some week-end shut-down pay? This is hard to determine as long as all goes well, but if the plain bearings should fail anyway, there would be no question. The most potent advantage of anti-friction bearings is of an insurance character and for insurance to be profitable the avoidance of mishaps is entailed.

Most of the paper mills replying to inquiries concerning their experience with anti-friction bearings reported that such bearings constituted component parts of the machines as installed, for which reason they were unable to supply any information regarding the economies the bearings may have effected. Without exception, however, satisfaction with the bearings was expressed. The Chief Engineer of one of the big paper mills expressed himself thus, "Perhaps, the best thing that can be said is that there is nothing to say and that as far as the layman is concerned, there are no bearings on the machine."

Reports such as these appear to indicate that the paper industry



The Voith Inlet In Your Mill Will—

—Reduce production costs and at the same time produce better paper.

—Increase production often more than 10% over the old slice method without sacrificing quality.

—Save wires. With the Voith Stock Inlet wires last from 15% to 20% longer, with fewer breaks.

—Produce paper of uniform caliper with a minimum of effort and without troublesome old style slices.

—Give you accurate control over the stock as it flows onto the Fourdrinier wire helping eliminate lumps and foam spots.

These are some of the outstanding features of the Voith Stock Inlet. Information about other advantages will be sent to you on request. Let us send the booklet describing only the Voith Inlet.

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has accepted anti-friction bearing equipped machines as a natural evolution and expect their machines to be so equipped without any very definite appreciation of what economies are really effected. The practice of many manufacturers of paper making machinery in furnishing many of their machines with anti-friction bearings as regular equipment seems strong confirmation of this atttitude. Nevertheless, there are still many paper machines in use and on the market for which anti-friction bearings have not been adopted. For this reason, a brief review of where and why such bearings can be profitably emplcyed will not be out of place and may serve in a measure to stimulate attainable reduction in paper making production costs.

Journal Conditions and Requirements

For the most part, the journal loads in paper and pulp machinery are quite high and the speed at which most of the shafts rotate are relatively low. Augmenting such heavy duty conditions further, is the fact that paper mills are habitually run on a twenty-four hour schedule six days a week. Much water is present and fairly high temperatures pertain, so the service demanded is indeed severe, several times as exacting as in most industrial activities.

Mitigating these conditions somewhat, however, is the tact that with a few outstanding exceptions virtually all bearings carry radial loads alone. What axial load conditions do obtain arise from well appreciated causes—from bevel gears of variable speed line shaft drives, from the back pressure of the Jordan engine plug, and from the shake of the Fourdrinier section, all of which can be admirably accommodated by suitably designed anti-friction bearings.

The unavoidable presence of watet naturally places much importance upon the design of housings, as does likewise the fact that rolls, felts and wires must be changed frequently and with dispatch in the paper mill. Also, the question of lubrication, so admirably solved with anti-friction bearings, presents a distinct and very definite problem.

Application of Anti-Friction Bearings to Fourdrinier and Cylinder Machines

Taking up specific bearing applications to machines, the breast rolls of the Fourdrinier have probably received most attention, for the reason that it is here that one of the most complex set of conditions is encountered. A relatively small but definite and continuous reciprocating movement has to be accommodated by means of location washers or thrust bearings and provisions made for frequent changes of wires and screens, as well as caring for a fairly high radial load.

It is not the intention to discuss the details of housing design, bearing proportions, etc. which have been evolved to meet these conditions or other of the special problems encountered in the bearing refinement of paper making machinery. Suffice it to say, that the application of anti-friction bearings to the breast rolls has been so successfully realized that the wire life has been increased from 30 to 40 or more per cent. Considering the fact that the cost of new wire represents a considerable expense item and that the labor charge for changing wire is no negligible amount, the saving effected by this one application of anti-friction bearings would well justify a much heavier investment than the one actually entailed.

Other positions on Fourdrinier machines for which anti-friction bearing installations have proved exceedingly profitable are on the wire guide and stretch rolls; on the press felt rolls, where they relieve much of the customary dragging and sticking of bearings which cause the excessive tension that so seriously aggravates felt wear; on table, couch and dryer rolls, winder and rewinder rolls; and the driving mechanism, line shafts, gear reduction, motors, etc. Each of these applications presents a more or less distinct problem in bearing design, but happily these problems have been solved to a degree that today insures very substantial economies.

Likewise, on cylinder machines, anti-friction bearings have proved effective money savers, particularly as applied to cylinder moulds. The cylinders rotate much more easily, conserving power, and as the felts serve as driving belts for the cylinders and felt rolls, the reduced tension materially prolongs their useful life. Also, as there is less strain and drag on the wire of the cylinders, the wire lasts almost twice as long.

Anti-Friction Bearings Applied to Jordan Engine Plug Shafts

While there is some question whether the application of anti-friction bearings to the plug shaft of the Jordan really effects any appreciable saving in power consumption, because the plug then maintains its close contact with the shell, it has been established that such application will increase Jordan production by 5 or 10 per cent. The reason for this is that the efficiency of the Jordan engine depends upon the smallness and uniformity of the clearance between the knives of the plug and the shell, and the application of anti-friction bearings maintains such clearance virtually constant. The result is that the stock is worked all around the circumference of the plug, is refined in fewer turns and, consequently, passes through the engine more rapidly.

This uniformity of clearance also insures better quality stock and the shell knives wear equally, which cannot be the case when there is any appreciable bearing wear, since under such circumstances the bottom knives are subjected to aggravated action. One of the leading manufacturers of Jordan engines claims an increased knife life of from 15 to 30 per cent by virtue of anti-friction bearing installation.

Then there are important savings in lubricants and lubricating labor to be secured through the installation of anti-friction bearings. Where, in an efficiently conducted mill, the plain Jordan engine plug bearings should be oiled at last once each 8-hour shift, when anti-friction bearings are employed, the application of a little grease regularly, but only a few times a year, will suffice. A reduction in lubricating expense of 90 or more per cent. is claimed.

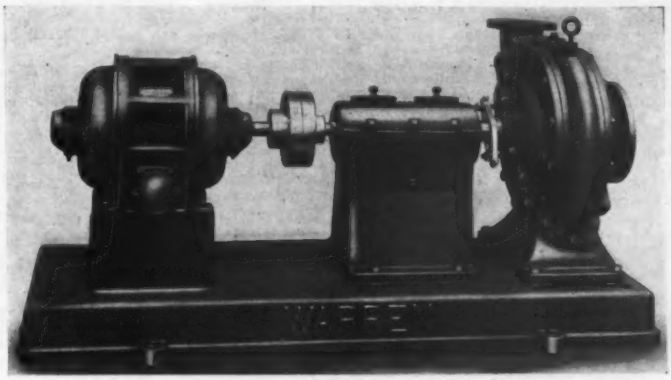
Further Attainable Anti-Friction Bearing Dividends

The savings to be effected by the application of anti-friction bearings to other paper making machines and to power equipment found in the paper mill power plant are almost as numerous as are the number of journals employed. The power demand for chippers, for example, can be halved. The production of pulp grinders has been stimulated 10 to 15 per cent. Pulp shredders, with anti-friction bearings, materially reduce the time required for treatment in beaters, by more efficiently breaking up the lap pulp. Applied to slitters and winders, anti-friction bearings guard against oil being thrown from the bearings or shafts onto the paper. As they are virtually not affected by wear, they serve, furthermore, to hold paper rolls in balance.

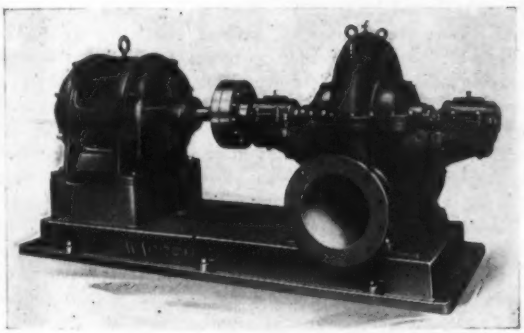
Pumps of all kinds, electric motors, rotary screens and agitators, as well as hangers for line—and countershafts, etc., afford opportunity of effecting savings in power, of making possible reductions in maintenance expenses, of conserving supplies of many kinds and of minimizing labor charges through the installation of anti-friction bearings. Such installations, furthermore, tend to develop that dependability of equipment which virtually insures against shut-downs. Herein lies the greatest asset of anti-friction bearing installations.

In reality, the dependability of equipment secured through the use of anti-friction bearings far overshadows from a monetary point of view, the value of any of the more tangible economies which can be realized, whatever they may be. For, while the power expense may not be the dominant factor in the cost of paper production, an enforced shut-down may precipitate a staggering loss.

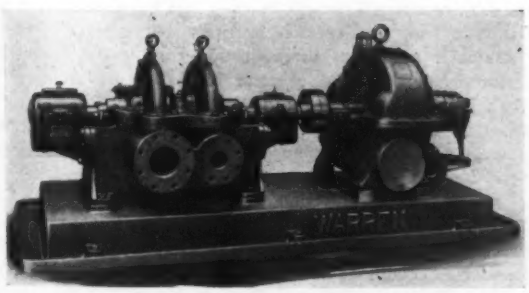
The progressive mill management which exercises careful and wise supervision over its expenditures will find, however, that



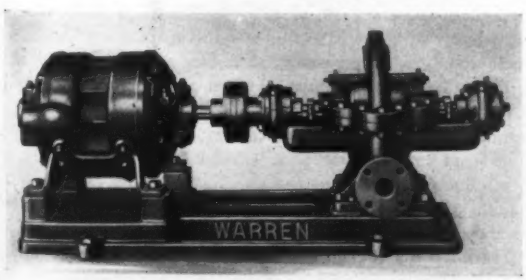
Warren Type SOD Single Suction, Semi-Open Impeller Stuff Pump



Warren Type DL Double Suction Pump



Warren Type 2 DH Two-Stage, Double Suction, Turbine Driven Pump



Warren Type DB Double Suction Centrifugal Pump

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The efficiency of your mill depends on the efficiency with which the water and pulped stocks are handled.

Give as much thought to your pumps as you do to your machines.

Warren Pulp and Paper Mill Pumps are designed by engineers of long experience with pulp and paper mill pumping problems to put your pumping equipment on a par with the finest, most up-to-date production equipment.

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there are numerous economies of very tangible and worthwhile order which can be effected through the installation of anti-friction bearings without anticipating shut-downs or other possible mishaps of a serious nature. A few cases where such savings have been effected will be cited, the findings in which are vouched for by a firm of nationally known engineers and by the paper mills where the economies were realized.

Paper Mill	Anti-Friction Bearing Locations	Improvements Realized	Estimated Annual Saving
Kimberly-Clark Company, Niagara Falls, N. Y.	Four carrying rolls on each of two Fourdriniers and on breast roll of one of these machines.	Wrinkling of wire arrested; savings in oiling labor, lubricant expense, wire replacement cost and power consumption.	$2,482.48[1]
Robert Gair Company Montville, Conn.	Cylinder moulds of two machines.	Savings in felt cost, oiling labor, lubricant expense, maintenance and in power consumption.	3,996.10[2]
Natick Box & Board Company, Natick, Mass.	Cylinders and felt rolls of 82-inch box board paper machine.	Savings in wire renewal costs, oiling labor, lubricant expense and in power consumption.	642.73[2]
Fitchburg Paper Company Fitchburg, Mass.	1 56-inch Fourdrinier complete except on press and dryer rolls.	Savings in lubrication expenses, maintenance, in wire renewals and in power consumption.	9,978.04

[1] Exclusive of saving in power, wire replacement cost on second machine and other incidental savings.
[2] Exclusive of saving in power and other incidental economies.

At the Kimberly-Clark Company Mills at Niagara Falls, considerable trouble was experienced a few years ago by the wrinkling of the Fourdrinier wire and investigation revealed the fact that the plain bearings supporting the shafts of the carrying rolls caused a drag which placed an excessive pull on the wires. To overcome this, the shafts of four of the carrying rolls, on two identical paper machines, were provided with anti-friction bearings and subsequently the shaft of the breast roll of one of the machines was equipped in like manner. No further difficulty was experienced with wrinkled wires and incidentally the following substantial savings were realized:

A saving in wire replacement costs on the machine with the breast roll and four carrying rolls mounted on shafts running in anti-friction bearings was effected, totaling to $1,996.80 a year—10 cents on each ton of paper produced. A saving in oiling labor on the two machines—the former bearings had to be oiled every two hours, while the anti-friction bearings required greasing only once a week—amounting to $6.27 a week, of $326.04 a year, was realized, and the saving in lubricant cost for the two machines represented a further salvage of $159.64 annually.

In short, the investment of a relatively few dollars which were unquestionably quickly repaid by overcoming the wire wrinkling evil, for which purpose the anti-friction bearings were primarily installed, returned what can very properly be termed an unearned dividend of not less than $2,500.00 a year. Actually, the return was considerably larger, for this figure does not take into account any saving in power expense, nor is the saving in wire replacement cost for the second machine accounted for, nor are other incidental savings taken into consideration.

By equipping the cylinder shafts of the box board paper machines at the Natick Box and Board Company, Natick, Mass., with anti-friction bearings, the torque required to turn the cylinders was substantially reduced, the life of the wire on the cylinders was materially prolonged and the cost of lubricating the bearings greatly reduced. In monetary terms, the savings outside of that effected in power consumption, which was the active and direct factor in bringing about the economies follow:

The savings in wire renewal expenses attributable to the decreased tensions on the felts amount to $474.10 a year. A saving of $153.45 annually is effected in labor for oiling and the reduction in lubricant expense, occasioned by having to grease the bearings only every two weeks instead of oiling the superseded bearings daily, is $15.18 a year.

These items total to $642.73 each year, but no account is taken of the basic saving realized in power consumption conservation. This latter must be considerate, for with the anti-friction journals a man can turn a cylinder by hand, while when plain bearings were employed an iron bar had to be used as a lever to start a cylinder revolving.

A third example of savings effected through the installation of anti-friction journals for the more important bearings in paper machines which does take account of the economies effected in power consumption may be cited, however, which may throw some light upon the actual savings realized in the two foregoing instances. The experience is that of the Fitchburg Paper Company, Fitchburg, Mass., with its 150-inch Fourdrinier equipped throughout, except for the press and dryer roll shafts, with some 344 anti-friction bearings.

Known savings in bearing maintenance expenses, as compared with such expenses contracted for equivalent babbitted bearings, including both labor and all fixed charges, total to $1,075.07 per year. Lubrication economies effected, including both reduction in labor and saving in cost of lubricant consumed, amount to $1,274.40 a year. Wire renewal cost savings add up to $2,137.85 annually, while the conservation in power consumption represents a net saving of some 25 per cent. In dollars and cents, this latter item totals to $5,490.72 every twelve months. In toto, annual savings of $9,978.72 are realized, of which amount about 55 per cent. is attributable to savings in power consumption alone.

This emphasis on the saving in power expense burden is not intended to intimate that the total savings effected at the Kimberly-Clark mills and the plant of the Natick Box & Board Company are in effect double the amounts as claimed, but the power saving percentage is significant in that it is representative of a substantial economy frequently lost sight of in the satisfaction of effecting rather indirect savings of a nature more forcibly reflected upon the books.

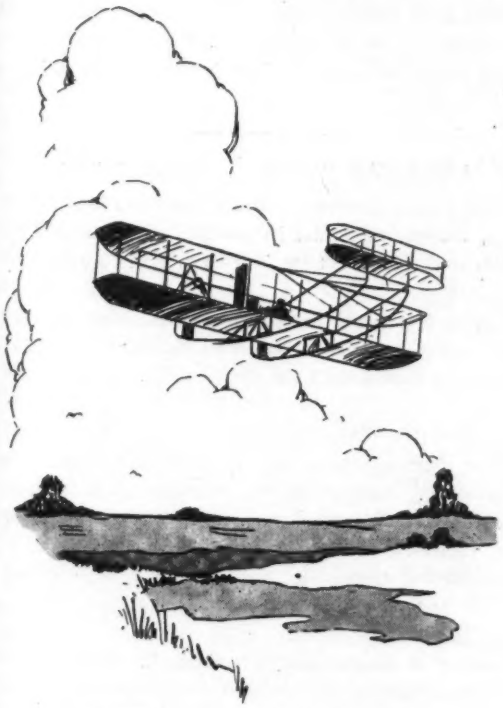
From the foregoing and the necessarily hurried and sketchy portrayal of anti-friction bearings in the paper mill and in the transmission of power from the generating unit to the roll of the paper machines by mechanical means, it must not be assumed that the installation of any anti-friction bearings will necessarily secure those attainable reductions in production costs which can be effected through proper and effective combating of friction. In fact, the major improvements realized in one of the mills listed on the statistical table were brought about through the substitution of certain types of anti-fricion bearings for other anti-friction bearings. Numerous other such cases could be mentioned.

No, the successful application of anti-friction bearings to the needs of the paper mill requires the full knowledge of specialists—of men who are thoroughly conversant with bearings and their behavior under all conditions and who know the requirements for the best ranking efficiency of paper making machinery.

This naturally throws much responsibility upon the manufacturers of paper making equipment, for the time is close at hand when the industry will demand the best in bearing refinements on all machines it purchases. Manufacurers of anti-friction bearings, well qualified to be of considerable assistance to both manufacturers of paper mill equipment and to the operators of such establishments stand ready, however, to render all possible aid in enabling the mills to earn the maximum in anti-friction bearing dividends.

The mills should appreciate, furthermore, that a hundred cents salvaged from existing frictional wastage—directly or indirectly—are worth as big a dollar as can be earned in any other way. If paper mills, no matter how economically and efficiently they may believe they are running, will take sufficient interest in bearings and in seeking for the elusive economies which can be effected to some extent in every mill, to invite the study of their individual needs by equipment builders and anti-friction bearing manufacturers, the objective of this discussion will be realized in full.

Appleton
Felts and Jackets



Orville and Wilbur Wright made the first successful aeroplane flight, 1903

Both the Atlantic and Pacific oceans have been crossed by aeroplanes since 1903 when Orville and Wilbur Wright made the first successful aeroplane flight. New names have been added to our list of national heroes—Lindbergh, Chamberlin, Byrd, Maitland, Smith. But in 1903, when the first successful aeroplane flight was made, Appleton Felts and Jackets were preferred by leading paper mills in America—and have continued ever since to be the choice of mills.

Backed by 36 years successful experience in making felts, Appleton Felts and Jackets are outstanding today for quality and service. Durability that only can be produced from a high grade pure wool, adaptability and accuracy are three reasons for the wide use of Appleton Felts.

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CONTROLLING FLOW OF HUDSON

After agitating for more than twenty-five years to enlist state aid, a project for controlling the flow of the Hudson River, pulp and paper manufacturers of the Upper Hudson Valley see their efforts rapidly nearing fruition. The first step in the project, the erection of a dam at Conklingville at a cost of $9,000,000, is well under way. Several contracts are in progress in the Sacandaga Valley for construction of new state highways to replace the roads which will be submerged when the reservoir is completed. Several hundred men are employed on these contracts which are being financed from a bond issue floated last spring by the Hudson River Regulating Board.

Pulp and paper manufacturers of the Hudson Valley, particularly in the Glens Falls area, have labored ceaselessly for twenty-five years or more to remedy river conditions which caused pulp and paper mills to lose thousands of dollars each year through lost production due to low water and flood conditions in the spring. A series of regulating reservoirs in which the water could be stored during the flood period and released gradually to maintain a proper level in the river has long been recognized as the ideal remedy for river control.

The Kanes Falls Pulp Company, operated by the late Eugene Ashley in the town of Fort Ann, successfully used this idea many years ago on a small scale. The success of Mr. Ashley's venture led to a concerted effort by pulp and paper mill operators of the Upper Hudson to enlist state aid in applying the same principle to the Hudson River. These efforts met with success during the term of Gov. Miller when the present Hudson River Regulating District Board was established under an act of the legislature.

The importance of the project to the pulp and paper industry of the Upper Hudson Valley can be gained from the fact that pulp and paper concerns are paying more than seven million dollars of the nine million dollar cost of the Sacandaga reservoir.

While the regulation idea was originally advanced to eliminate the time lost by pulp and paper mills through high or low water, the greatest benefit to be derived therefrom will be in the increased power possibilities of the river. Most of the principal power sites along the upper Hudson are owned or controlled by the paper companies and elaborate plans are already being made for the erection of new dams and generating stations at different points on the upper river. Plans have been outlined for two new dams between Corinth and the Hadley Paper Mill; another dam and power station will be built at Baker's Falls and it is understood that the International Paper Company, West Virginia Pulp and Paper Company, Finch, Pruyn & Company, and other firms are planning expansion of power generating facilities as soon as river conditions become favorable.

The most extensive project outlined to date is that which the Union Bag and Paper Corporation plans to carry through at Baker's Falls. A new generating station and another dam will be erected at this point to cost in the neighborhood of four million dollars.

The Baker Falls site which is now the location of a group of mills of the Union Bag Company, figured importantly in the early history of papermaking in the Hudson Valley as it was here that Stephen Howland, about 1850, launched the first paper mill in the territory. The Howland family, consisting of father and five sons, gradually developed a huge business which at the time of its absorption by the Union Bag and Paper Company in 1898 was one of the leading producers of manila paper bags.

The Union Bag and Paper Company will probably start work on the Baker's Falls project in 1928 and it is expected that by that time work will be so far advanced on the Sacandaga reservoir that other paper companies will be going ahead with their power expansion plans.

AMERICAN WRITING COMES BACK

The first financial statement of the American Writing Paper Company, Incorporated, since its reorganization March 1, made public this week, shows net earnings up to June 30 of $125,634.84 after payment of bond and note interest amounting to $123,333.33 for this same four month period. This means gross earnings of $248,968.17, after depreciation but before Federal taxes and interest charges. This statement also shows a liquid asset position of 8.44 to 1.

This is one of the healthiest statements ever issued by the company. The statement shows cash on hand of $1,070,666.84 with physical properties and equipment valuation marked extremely low, in accordance with appraisals made in 1917 before the general increase in prices which have prevailed since the war. Under the old capitalization, trademarks and good will were valued at $18,000,000. Today the good will and trade marks of the company are carried on the books at $1.

Commenting on the statement, Mr. Sidney L. Willson, president of the company, pointed out the significance of the company's having achieved so sound a financial position immediately after its reorganization.

"The financial statement made public today," Mr. Willson said, "shows that this company has completed its first long stride toward regaining its rightful position in the industry and demonstrates the stability of our present position. These results were accomplished during a period of the year when business is ordinarily not at its peak, and I have every reason to believe that the end of the year will show total returns in proportion to the remarkable showing since reorganization.

"With the sound capital structure which we have now, there is no reason why this company cannot continue to grow in strength. It is our impression that the American Writing Paper Company, Incorporated, has won the respect of the industry, principally because it has maintained its sales without cutting prices during the

receivership period and because it has shown its ability to come back as a clean competitor.

"At the present time tonnage of paper on order is far in advance of the usual tonnage at this time of year. Our personnel has been strengthened, the market carefully analyzed and we believe that the entire organization is working at a high point of efficiency.

"General business conditions, as I see them, are favorable to our particular industry. I look for a slight recession in general business during the summer period, to be followed during the balance of the year with increased activity. Competition, though keen, is constructive rather than destructive, and I look into the future with a great deal of optimism. The small unit of sale for nearly all commodities has created in the minds of some an impression of poor business, but industrial statistics indicate large production and consumption, with reasonable profits. The natural result of these factors is 'good business.'"

Those who have followed the history of the American Writing Paper Company through its receivership, point out that this financial statement contains impressive evidence of results which proper capitalization and good management will bring.

Crown-Willamette Gets Big Hearst Contract

PORTLAND, Ore., July 29, 1927.—Undoubtedly the largest contract ever entered into by any Pacific Coast mill manufacturing news print paper, and probably a record contract made by any similar producer of wood pulp product, is the recently announced signing of an agreement by the Crown Willamette Paper Company, an Oregon institution, with the publishers of the Hearst newspapers at San Francisco, Los Angeles and Seattle.

According to authentic information the Crown Willamette company's contract, entered into last March, provides that the Hearst newspapers will take from the Crown Willamette company a minimum of 200 tons of paper daily for 300 days a year for 10 years at a price which will yield the paper company approximately $3,900,000 the first year and an estimated 10 per cent yearly increase thereafter until 1938.

The aggregate contract is estimated to be $58,000,000.

It is said that the contract provides for a revision of price by mutual understanding at the beginning of each year.

The Hearst newspapers to be supplied with print paper under this contract are the *Seattle Post-Intelligencer*, the *San Francisco Examiner* and the *Los Angeles Examiner*.

The Hearst newspapers on the Atlantic seaboard and elsewhere in the East are not concerned in this contract with the Crown Williamette Paper Company.

Those who are in possession of inside information say that William Randolph Hearst, through his managers, played a winning hand in a stiff game by threatening to build a pulp paper mill on the coast of Alaska for the needs of the chain of Pacific Coast newspapers. At any rate, if it was a bluff, it worked, and now both the Hearst newspaper family and the Crown Willamette officials are "sitting pretty" with feelings thoroughly becalmed.

This contract will have a profitable bearing upon the status of the Crown Willamette Paper Company, whose operations are at Lebanon and West Linn (Oregon City), Oregon; at Camas, Washington, and at Ocean Falls, British Columbia. One certain effect will be favorable on one of Oregon's foremost payroll industries.

Paper Index Number Lower

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1927.—The production index number for June for the paper industry was 111 compared with 113 for May and 124 for June of last year taking 1919 at 100 per cent according to the Department of Commerce.

Union Bag Co. Entertains Jobbers

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., August 1, 1927.—The Union Bag and Paper Corporation on two occasions during the past few days entertained parties of jobbers from New York and vicinity who handle the Union Bag products. The first party was composed of fifteen members of the Metropolitan Jobbers' Association of New York City and two days were spent in Hudson Falls. Most of the time was spent in an inspection of the various mills and factories of the company, although a number of side trips to vicinity summer resorts were arranged for the entertainment of the visitors.

The party made the trip to Hudson Falls under the auspices of the Columbia Bag and Paper Company, of Brooklyn, a subsidiary of the Union Bag Company. F. W. Parker, of Long Island City, vice president of the Columbia concern, and C. F. Wilding, of the New York office of the Union Bag Company, acted as hosts to the jobbers. The entertainment provided included a dinner at the Halfway House near Lake George. The party made the trip to Albany on the night boat and returned the same way.

The New York and Brooklyn jobbers in the party were I. P. Stein, Thomas J. Nagle, A. E. MacAdam, George W. Batz, Benjamin Sulfen, Bernard Sulfen, F. W. Hohne, H. H. Tuthill, R. P. Walter, Joseph Paine, F. Marker and F. W. Heinrichs. J. H. Sherwood and Albert M. Hanck, retail paper salesmen of Buffalo, were included in the party.

On Thursday another party of twelve jobbers, also members of the Metropolitan Jobbers Association, were the guests of the Union Bag Company and like the first party spent two days in sightseeing and inspection of the Union Bag mills. Representatives of the Columbia Bag and Paper Company acted as guides for the second party also. Among those included in the second party were F. W. Cooney, S. Seffers, F. W. Parker, A. Feldman, L. Selfen, C. Safin, D. Croce, Arthur Stein, Clarence Stein. Messrs. MacAdam, Heinrich and Walter, who were with the first party, were also included in the second delegation.

D. A. Crocker to Attend Canadian Woodlands Meeting

D. A. Crocker, forester of the Woodlands Section of the American Paper and Pulp Association, will attend the summer meeting of the Woodlands Section of the Canadian Pulp and Paper Association, at Chicoutimi, P. Q., August 2 to 5. Mr. Crocker plans to leave Montreal the night of August 1 with members of the Canadian Section, who are making the trip by boat.

A particularly interesting feature of the summer meeting of the Canadian Section is a demonstration of power saws which is to be given by various manufacturers. Woods operations in eastern United States and Canada have lagged far behind the mills in the use of modern machinery. This has not been wholly the fault of the woods operators, since there has been a lack of labor-saving machinery which was adapted to the small timber of the region.

Recent developments in power-driven chain saws give promise that eventually practical labor-saving devices may be developed for woods operations. The demonstration at the Canadian meeting will, therefore, be studied with much interest, in the hope that its results may prove of benefit to the pulp and paper industry in both countries.

Kaolin Deposits Found in Mississippi

ASHLAND, Miss., August 1, 1027.—Kaolin deposits have been discovered in Benton County, east of Hickory Flat, which, according to the State geologist, Dr. E. N. Lowe, are very rich in quality.

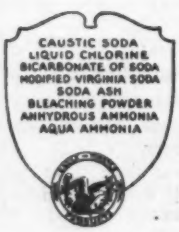
About one thousand acres, largely controlled by the Carr-Lowry Lumber Company, is rich in this deposit, and specialists are now working on this product to push development.

MATHIESON Industrial Chemicals

Liquid Caustic Soda and the Modern Trend in Material Handling

EFFICIENT handling of materials is the subject of intensive study today as one important means of cutting production costs. Mechanical methods are taking the place of manual labor wherever possible—and jobs are being done more easily and quickly and at lower cost.

In the chemical process industries, for instance, a steadily increasing tonnage of caustic soda is being shipped in liquid form in tank cars instead of in solid form in drums. At the consumer's plant, the liquid is transferred into storage tanks entirely by mechanical means, thus eliminating the cost and inconvenience of unloading, handling and cutting open many drums, dissolving the solid caustic and disposing of the worthless empty drums. With 50% liquid caustic soda, the user need only dilute the liquor to the desired concentration for his processing operations.



This economy in handling is often sufficient in itself to make the use of liquid caustic attractive to large consumers. In addition to its handling economy, however, liquid caustic offers in many cases a very substantial saving in delivered cost over the solid material in drums.

Our new 8-page pamphlet on liquid caustic soda—Mathieson Bulletin No. 270—tells who may profitably use caustic soda in liquid form and how it is best unloaded, stored and diluted, together with other useful data for the plant executive and purchasing agent. A copy of this valuable Bulletin will be sent to interested consumers upon request to our nearest office.

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Conducted by W.G. MacNAUGHTON, Secretary

Suitability of American Woods for Paper Pulp*

By Sidney D. Wells and John D. Rue

This bulletin, No. 1485, containing exhaustive data on the 94 species of trees investigated by the Forest Products Laboratory, Madison, Wis., as well as the Bulletin 1251, "How the United States Can Meet Its Present And Future Pulpwood Requirements," should be studied by every user of pulpwood as they represent the latest and most complete information on this important subject.

Scope and Objects of the Investigation

In 1906 the Forest Service commenced, at its pulp and paper laboratory, then located in South Boston, Mass., a study of the pulping characteristics of American woods for the manufacture of paper pulp. Since that time the work has been continued as one of the major research projects of the service. This bulletin (No. 1485 is a report of what may be termed the general or "extensive" phase of the investigation, covering all available species which seemed to offer possibilities.

Most of the 94 species studied have been tested by the soda, sulphate, and sulphite processes. Twenty-two have also been tested by the mechanical process in the commercial sized experimental unit operated at Wausau, Wis., from 1911 to 1914, and reported upon in Department of Agriculture Bulletin No. 343, "Ground-Wood Pulp," by J. H. Thickens and G. C. McNaughton. A small compilation of the chemical pulping experiments up to 1912, by H. E. Surface, was published as an unnumbered Forest Service bulletin entitled "Paper Pulps from Various Woods." Since 1912 articles on the subject have appeared from time to time in trade and technical journals, but this bulletin is the first attempt to present a report of the survey as a whole.

The work had two objects: (1) To determine the suitability for paper manufacture of species growing on the national forests, so that the Forest Service might be able to guide timber sales efforts intelligently; and (2) to ascertain the relative merits of species not in common use but available to established pulp mills, so that suitable species might be found to supplement the waning supplies of spruce. The results of the investigation of western species have already been used in consummating national forest timber sales have influenced the establishment not only of pulp mills dependent on national forest timber but also of mills dependent on private holdings. The severe shortage of materials experienced by the paper industry in 1919 emphasized the importance of supplementing the supplies of spruce, and it may be profitable to survey briefly conditions as they are now in order to bring out more clearly the possible application of this part of the experimental work.

The Pulp Wood Situation

According to the latest available statistics, one group of conifers, the spruces, supply 55 per cent, and three groups, the spruces, firs, and hemlocks, supply 77 per cent of the wood consumed by the pulp industry of the United States. Table 1 shows the proportion of the material that principal pulp woods supply for each pulping process.

TABLE 1

PULPWOOD CONSUMPTION, BY SPECIES AND PROCESSES OF MANUFACTURE, FOR THE UNITED STATES, 1922 [1]

Species pulped	Mechanical process		Sulphite process		Soda process		Sulphate process		Totals by species	
	Cords	%	Cords	%	Cords	%	Cords	%	Cords	%
Spruces	1,303,169	87.3	1,650,660	59.7	1,121	.1	77,940	15.5	3,032,890	54.7
Firs	89,537	6.0	224,415	8.1	.....	...	39,378	7.8	353,330	6.4
Hemlocks	65,776	4.4	795,980	28.8	3,671	.5	27,768	5.5	893,195	16.1
Poplars	8,115	.5	2,135	.1	311,488	39.6	16,193	3.2	337,931	3.1
Yellow poplar	.....	...	.....	...	102,200	13.0	.....	...	102,200	1.8
Gums	.....	...	.....	...	52,058	6.6	.....	...	52,058	.9
Pines	25,240	1.7	9,865	.3	117,094	14.9	270,525	53.9	422,724	7.6
Larches	2,100	.1	10,599	.4	.....	...	55,595	11.1	69,294	1.2
All other species [2]	90	.0	71,625	2.6	199,336	25.3	15,169	3.0	286,220	5.2
Total by processes	1,494,027	26.9	2,765,279	49.9	786,968	14.2	502,568	9.0	5,548,842	100.0

Over 80 per cent of all pulpwood in the United States is consumed in mills situated in the New England, Lake, and Middle Atlantic States. The stand of spruce, fir, and hemlock in this territory is estimated at 3 per cent of the total timber stand of the United States and at about 27 per cent of the total stand of the species mentioned.

As a result of these conditions, pulp wood is now being transported by land and water to many mills over distances of from 500 to 1,000 miles. Imports from the Dominion of Canada are very large. In 1922 Maine depended on Canada for 13 per cent of her spruce, New Hampshire for 35, New York for 64, Pennsylvania for 99, and Michigan for 33 per cent. In addition, 53 per cent of the poplar used by United States mills was imported from Canada. On account of the limited supply and the increased in-

* Bulletin No. 1485, United States Department of Agriculture. Government Printing Office, Washington, D. C., May, 1927, 102 pages, 20 cents per copy.

[1] Based on Table 4, "Pulpwood consumption and wood pulp production, 1922," Bureau of the Census.

[2] Includes slabs and other mill waste. Species are basswood, beech, birch, maple, chestnut, cottonwood, Douglas fir, white pine, and willow.

fluence of the transportation factor, the average cost of spruce pulpwood f.o.b. mill in the Northeastern States in 1922 was between $15 and $28 a cord, depending on whether it was rough, peeled, or rossed.

With steadily rising pulp wood costs the less efficient mills, without their own timber supply, will eventually be forced out of business. It is only by improvement in operation, in processes, in the handling of timber lands, and by the use of other species, that even the better-equipped and managed of the present mills can continue to operate. The use of hemlock by the Wisconsin mills is an example of what can be done with wood once considered unsuitable for pulp.

The necessity for the older mills to turn to other species and to grow their own pulpwood is indicated in Bulletin 1241. It is there stated that because pulpwood use is confined so largely to a small group of species, over one-half of the 9,148,000 cords required to manufacture the United States paper requirements in 1922 were imported as pulp wood, pulp, or paper. Many states are forced to rely upon wood from without their boundaries. In New England and the Lake States, where much of the industry is concentrated, imports of pulp wood and wood pulp are being relied upon to a greater and greater extent to maintain production levels. Throughout the pulp and paper manufacturing regions there are insufficient forest resources to maintain production for an extended period without an intensive program of timber growing, the elimination of waste, a general tightening up in the manufacturing processes, and the extensive use of other than commonly used species for pulpwood.

A study of the distribution of the stand of timber in the United States by species will indicate the supply of pulpwood available for existing mills and what could be added by the use of additional species. Table 2 shows such distribution as accurately as it can be ascertained with the information at present available.

Sulphate Process for Southern Hardwoods

Experimental work at the Forest Products Laboratory has demonstrated that the sulphate process applied to the southern pines, in combination with the gums and similar hardwoods of the South, will yield pulps which may be bleached by proper methods and used in the manufacture of book, magazine, and similar high-grade printing papers at reasonable manufacturing cost. The value of this experimental work is emphasized by the fact that the South is advantageously situated in respect to nearness to the publishing centers and availability of fuel, chemicals, and other raw materials. Not only has it enormous quantities of suitable woods available, but owing to climatic conditions the amount of wood which can be grown in the South is from 35 to 40 per cent of the potential productivity of the entire area of forest land in the United States. The growing capacity of unit areas is also very high.

Although the soda process is generally used on hardwoods on account of the greater opacity of the pulp, the sulphite process produces from many species (such as the birches, maples, and gums) greater yields of pulp that can be bleached with much lower consumption of bleach.

Bleaching Sulphate Pulp

Although the practice of bleaching sulphate pulp is not very prevalent, work at the Forest Products Laboratory has demonstrated that by using modified methods of bleaching with the standard solutions, and with quantities of bleaching powder not in excess of common commercial practice, very satisfactory results may be obtained. Although the pulp obtained by ordinary methods of bleaching is yellow and does not approach the brilliant white characteristic of bleached sulphite pulp, pulp comparable in brightness is obtained by the modified methods. The opacity of the bleached pulp is usually greater than that of bleached sulphite pulp. It thus becomes possible to obtain from sulphate pulp papers having printing properties superior to those of papers from bleached sulphite pulp, unless the latter is combined with bleached soda pulp from hardwoods.

Uses for Bark

The barks from some species, such as hemlock, contain sufficient tannin to justify recovery of the latter by means of water extraction before burning. Extracted hemlock tanbark has also been found a suitable material for use with rags for the manufacture of roofing felt, and considerable quantities have been used for that purpose. Redwood bark is so utilized on a commercial scale.

Experiments with bark from the southern pines indicate that satisfactory roofing felt may be made with it by adding enough sulphate pulp from the same wood to give the required strength for passing through the impregnating bath. Spruce bark has been used as a portion of the furnish in the manufacture of board and cheap wrapping papers, such as car liner. Balsam fir and spruce barks have been used in finely shredded form in the manufacture of heat-insulation material.

Volume of Solid Wood Per Cord

The volume of solid wood per cord is an uncertain figure, which may vary from as little as 50 up to 100 cubic feet, according to the kind, shape, dimensions, soundness, and mechanical condition of the material. Rossed 2-foot spruce bolts of mixed diameters ranging from 6 to 14 inches contain slightly over 100 cubic feet per cord, and 100 cubic feet is assumed in figuring yields. Four-foot rossed bolts run 2 to 3 per cent less, 4-foot peeled bolts about 7 per cent less, and 4-foot rough bolts from 20 to 25 per cent less. The solid cubical content of mill waste varies enormously. Frequently 2 cords of mill waste will be found to yield only as much solid wood as 1 cord of 4-foot round bolts with the bark on.

Two-Stage Bleaching

Under the characteristics of sulphate pulps from the pines the bleach consumption in two stages is often shown. Tests indicated that in this case the consumption was only half that required in one stage and the color obtained was a purer white. Not all species were so tested, however, and the fact that the bleach requirement for two steps is not mentioned does not mean that better results might not occasionally be obtained by that procedure. It was found, however, that the advantages did not hold for sulphite.

Astoria To Sell Pulp Mill Stock

PORTLAND, Ore., July 29, 1927.—A campaign to sell $170,000 in stock in the Northwestern Pulp and Paper Company will be undertaken by the chamber of commerce of Astoria, Ore., as a result of a decision made by the board of directors in which they agreed to lend the organization's auspices to the sale under an escrow agreement.

By the terms of this agreement the stock subscriptions and cash payment is placed in escrow to be delivered to the company if conditions are met as follows: If a contract is entered into before October 15, 1927 for the construction of a 100-ton pulp mill at Astoria; if the contractor furnishes a bond to guarantee completion of the contract before October 15, 1928; and if the form and amount of the bond is given the unanimous approval of W. A. Tyler president of the Astoria National bank and other associates.

Goes With Mead Pulp & Paper Co.

George H. Pringle, who, since graduating with honors in engineering from McGill University in 1926, had been with Canada Paper Company, Windsor Mills, Que., has taken a position with Mead Pulp and Paper Company, Chillicothe, Ohio, in the engineering department. The three summers prior to graduation Mr. Pringle spent at Three Rivers, Que., working at Canada Iron Foundries and Canadian International Paper Company.

Expansion of Paper with Varying Humidity*

By Roger C. Griffin[1]

Some time ago Dr. H. S. Davis of this laboratory published[2] the results of tests conducted on several papers to determine the effect of varying temperatures and humidity conditions on their expansion and contraction. A new apparatus for these tests was also described. His tests, however, were conducted on a limited variety of papers and for a special purpose. Since then the apparatus has been improved and simplified and tests have been extended to include a wider variety of papers.

Apparatus

The apparatus, which we have called an Expansiometer, is shown in Fig. 1. The instrument consists of a conditioning chamber (A), made from a glass tube 1.5 inches inside diameter, and 2 feet long. This is capped top and bottom with brass collars (B) and (B'), cemented to the glass tube. Through holes drilled in the top collar there are two sliding brass rods (C) and (C'), adjustable vertically by set screws, and terminating at the bottom in clamps to hold strips of paper. Two similar rods with clamps on their top ends pass through the lower column and are connected by slots in the lower ends to the two pointers (D) and (D'). These pointers are in the same vertical planes, respectively, as the brass rods, and they are so counterpoised as to put practically no strain on the paper strips.

The humidity of the air in the chamber (A) is controlled by blowing a gentle current through the wash bottles (E) and (F), each of which contains a sulphuric acid solution of definite strength (or, for 100 per cent humidity, water). The air then passes through a spray trap (G), which is simply an empty gas washing bottle, and into the conditioning chamber through the side arm (H). A small hole bored in the bottom of the lower collar (B) serves as an exit for the air.

The pointers are so designed that with a 10-inch strip of paper each small division on the scale corresponds to a change of 0.01 per cent in the length of the paper strip.

Conditioning Chamber

The glass conditioning chamber may, if desired, be surrounded by a water jacket to maintain constant temperature. Davis found, however, that changes in temperature have comparatively little effect on the results obtained with a given paper in an atmosphere of any given relative humidity.

Strips of the paper are cut, both in the machine and cross directions, ½ inch wide and about 12 inches long. Two pencil marks are made on each strip exactly 10 inches apart. The strips are inserted in the lower clamp and fastened in such a way that the lower mark coincides with the point at which the paper is clamped. Then the opposite ends of the strips are fastened in the upper clamps in the same manner so that the paper between the two clamps is exactly 10 inches long. The rods (C) and (C') are raised until the pointers are at some definite mark on the scale. Finally, conditioned air is passed through the chamber at a slow rate (1 to 3 bubbles per second) until the pointers come to rest. This usually requires not more than ½ hour except in air completely saturated with water.

Control of Humidity

The curves in Fig. 2[3] show the strength of sulphuric acid required to produce different relative humidities in air bubbled through them.

The strength of the solutions may be determined from the density curve given. The humidity at which tests are most frequently conducted and the strength of acid required to give these humidities are as follows:

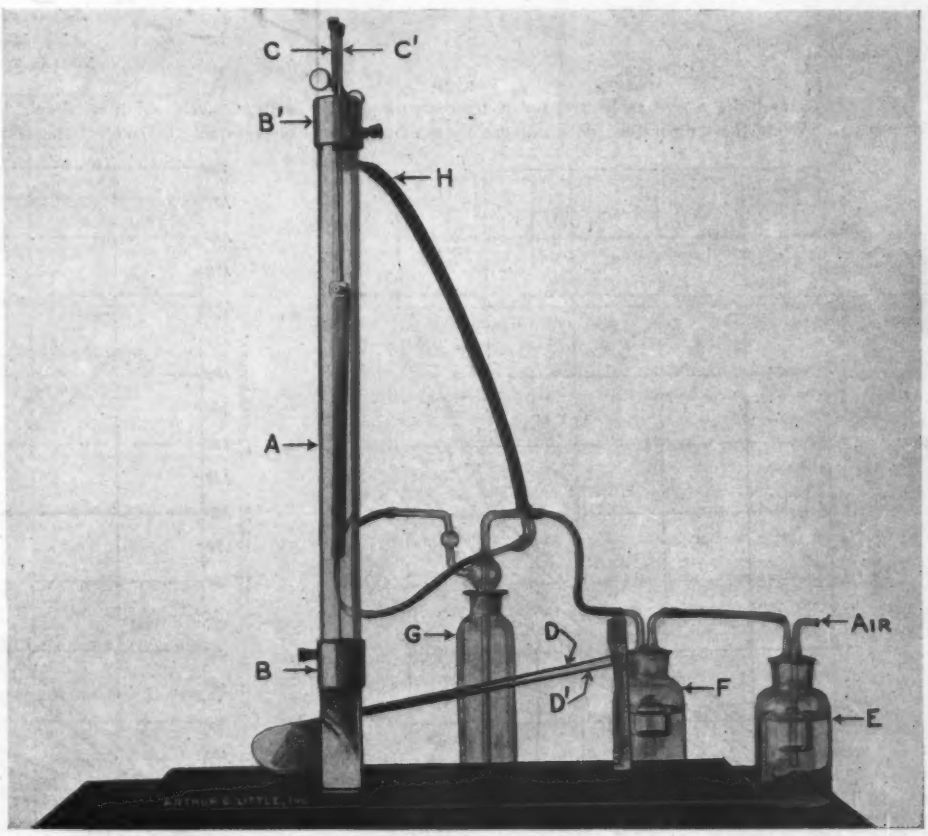

FIG. 1—EXPANSIOMETER.

A—Heavy Glass Tubing, 1½" inside diameter. B, B'—Brass Collars cemented to A. C, C'—Sliding Brass Rods, adjustable by set screws. D, D'—Pointers, in same vertical planes as C and C'. E, F—Gas washing bottles for controlling air humidity. G—Spray Trap. H—Entrance of Conditioned Air.

* Contribution from laboratory of Arthur D. Little, Inc.

[1] Director of Tests, Arthur D. Little, Inc.; Member of TAPPI Paper Testing Committee.

[2] Paper, 31, No. 12 (Jan. 10, 1923), p. 8.

[3] R. E. Wilson, Jour. Ind. Eng. Chem. 13, page 328 (1921).

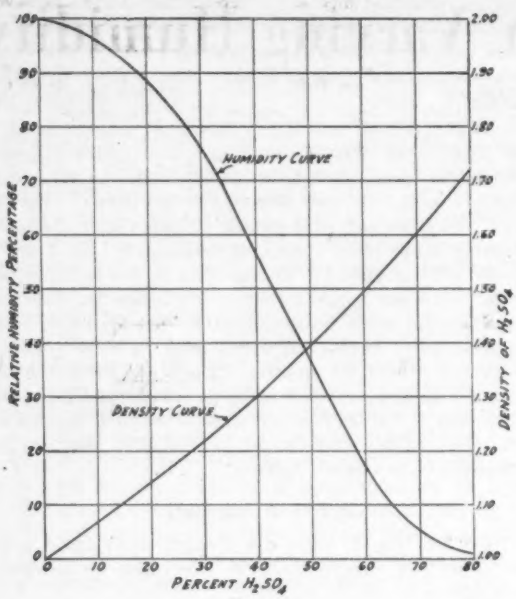

FIG. 2.
Aqueous Vapor Pressure and Density of Sulfuric Acid Solutions at 25 degrees C.

Relative humidity %	H_2SO_4 %	Sp. Gr.
10	64.8	1.55
25	55.9	1.45
35	50.9	1.40
50	43.4	1.33
65	36.0	1.265
75	30.4	1.22
90	18.5	1.125

The curves and the above table are for a temperature of 25 degrees C. While the temperature does not greatly affect the results, the acid solutions should be made up at 25 degrees C. and it is preferable to conduct the tests between 20 and 30 degrees C.

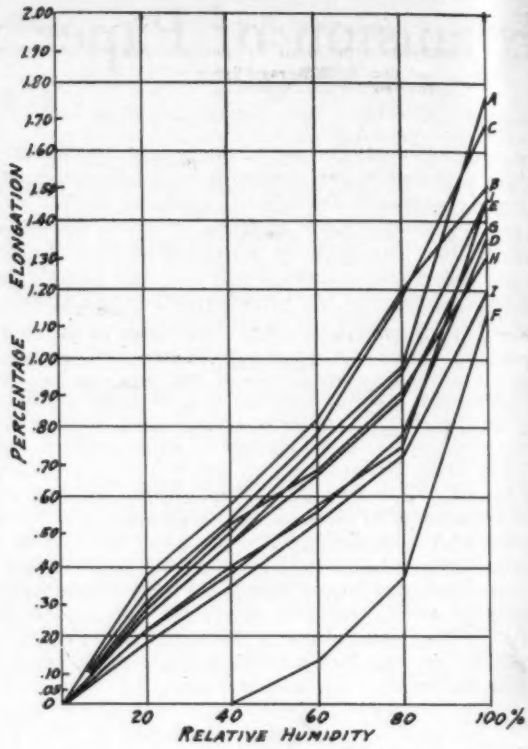

FIG. 4
Tests in Cross Direction.

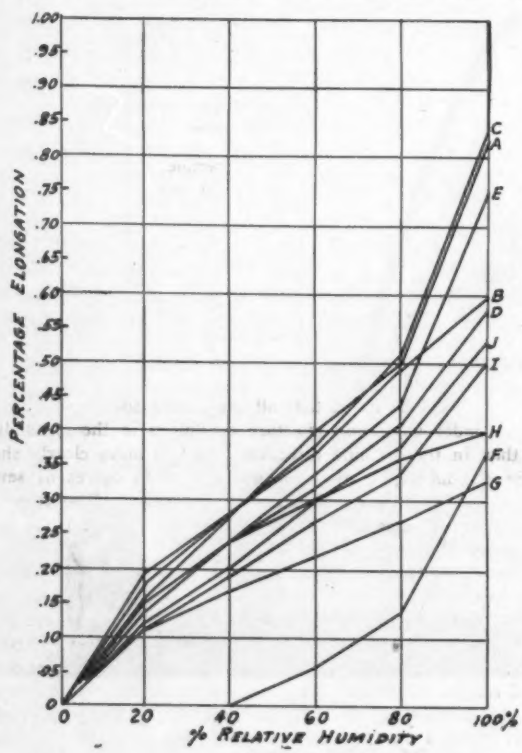

FIG. 3
Tests in Machine Direction.

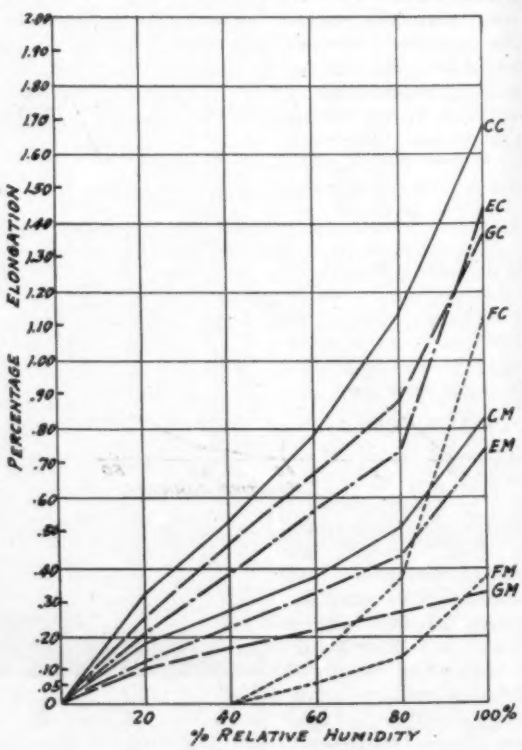

FIG. 5
Elongation of Typical Papers in Each Direction.

Papers Tested

The following papers have been tested in this laboratory in atmospheres varying from 0 to 100 per cent relative humidity:—

A Linen Record, 100% rag (Byron Weston Company).
B Light weight kraft (30 pound).
C Heavy weight kraft (60 pound).
D Double coated heavy book paper.
E Double coated light book paper.
F Waxed paper.
G Manila envelope paper (ground wood and sulphite).
H News print paper (Boston Post).
I Ordinary machine finished book paper.
J Sulphite bond paper.
K Blueprint paper (100% rag).
L Rope paper (100% rope fiber).

Method of Testing

Strips of the paper were placed in the apparatus and moisture-free air was passed through the chamber until the samples were bone-dry, as indicated by no further movement of the pointers. When this condition was reached the pointers were set at zero. Then air conditioned to 20 per cent relative humidity was passed through the chamber until there was no further expansion of the paper. After taking the reading of the pointers the procedure was repeated with air conditioned to 40 per cent relative humidity. Similar tests were made at 60 and 80 per cent relative humidity, and finally air saturated with moisture was passed through the chamber.

A few tests were made, starting with the paper in moisture-saturated air and reducing the relative humidity 20 per cent for each step. These tests, however, gave discordant results at high humidity and required very much longer exposure of the strips to reach equilibrium. For example Sample C, which showed an increase in length of 0.33 per cent in the machine direction and

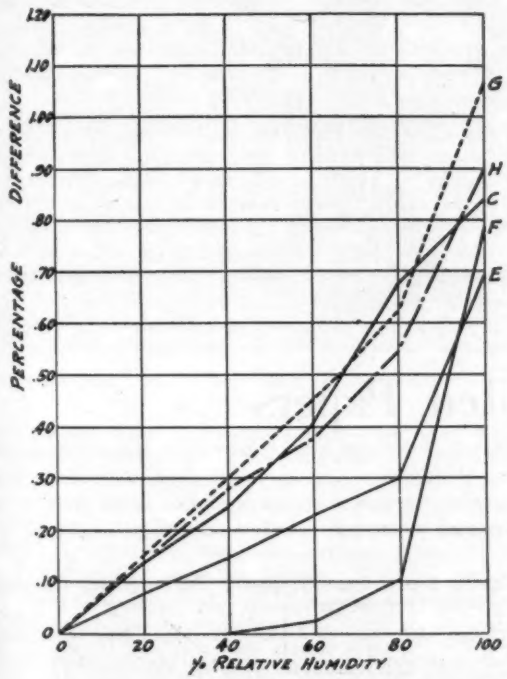

FIG. 6
Differences in Expansion in Cross and Machine Directions.

0.50 per cent in the cross direction on the ascending scale from 80 to 100 per cent relative humidity, only showed 0.17 and 0.36 per cent contraction, respectively, at the end of 6 hours on the descending scale from 100 to 80 per cent relative humidity. This same paper when the relative humidity was reduced from 80 to 60 per cent showed a contraction of 0.14 and 0.43 per cent in the two directions at the end of 6 hours exposure, whereas on the ascending scale from 60 to 80 per cent humidity it showed an expansion of 0.13 and 0.40 per cent, respectively. Tests on the descending scale of relative humidity were therefore abandoned in favor of those made on a rising scale.

Results of Tests

In Table 1 are given the results of the tests made on the 12 papers previously described. In addition to the expansion figures at different humidities the table includes for comparison the ream

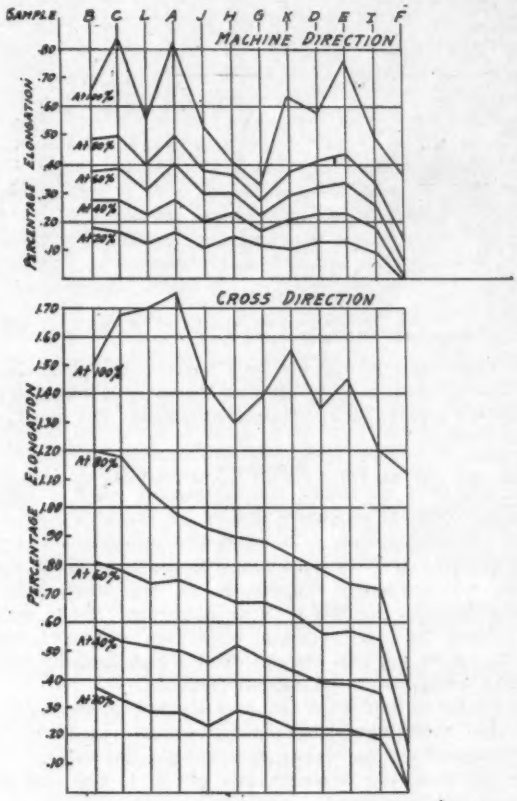

FIG. 7
Summary of Tests.

weight and thickness of the various samples. The results are also shown graphically in Figs. 3, 4, 5, 6 and 7.

Fig. 3 shows the expansion of the various papers at different humidity conditions in the machine direction. It is interesting to note that there was no effect upon the waxed paper, Sample F, up to 40 per cent humidity. At 60 per cent the paper showed a very slight expansion and at 80 per cent the moisture was apparently working into the paper through the wax and giving an appreciable expansion.

Fig. 4 shows the results on the same papers in the cross direction and it will be noted that all the papers show a greater expansion under increasing moisture conditions in the cross direction than in the machine direction. This is more clearly shown in Fig. 5 which gives the moisture elongation curves of several typical samples in each direction of the paper. The curve *CC* represents the cross-direction strip of sample C and the curve *CM*, the machine-direction of sample C, etc.

In Fig. 6 are plotted the differences in the percentage expansion between the cross and machine directions of five of the papers. Sample G (groundwood-sulphite mixture) shows the greatest difference in expansion in the two directions except at 80 per cent humidity. The waxed paper, sample F, shows the least difference, except in moisture saturated air.

In Fig. 7 are given the results of all the papers at the different humidity conditions. The papers are here arranged arbitrarily, starting with sample B which gave the greatest elongation

TABLE 1
SUMMARY OF TESTS

	A	B	C	D	E	F	G	H	I	J	K	L	General Averages Max.	Min.	Average of 11 Samples
Sample Ream Wt. (24x36—480)*.	65.6	31.0	59.0	103.0	61.6	32.1	138.0	32.3	26.9	45.9	53.0	80.0	138.0	27.0	61.2
Thickness, points	50	34	84	71	38	20 **	127	38	20	35	50	85	127	20	54.4
Percentage elongation															
Machine Direction															
at 20%	0.16	0.19	0.18	0.14	0.14	0.00	0.11	0.15	0.11	0.12	0.11	0.13	0.19	0.11	0.140
at 40	.27	.28	.28	.24	.24	.00	.17	.24	.19	.20	.21	.23	.28	.17	.232
at 60	.40	.37	.38	.32	.34	.06	.22	.30	.27	.30	.29	.31	.40	.22	.318
at 80	.50	.49	.51	.41	.44	.14	.27	.36	.34	.38	.37	.40	.51	.27	.406
at 100	.82	.60	.84	.58	.75	.37	.33	.40	.50	.53	.63	.55	.84	.33	.593
Cross Direction															
at 20%	.28	.38	.32	.22	.22	.00	.26	.29	.19	.23	.22	.28	.38	.19	.263
at 40	.50	.58	.53	.40	.39	.00	.47	.52	.35	.46	.43	.52	.58	.35	.468
at 60	.75	.81	.78	.56	.57	.13	.67	.67	.53	.71	.62	.74	.81	.53	.674
at 80	.97	1.20	1.18	.78	.74	.37	.89	.90	.72	.93	.84	1.05	1.20	.72	.927
at 100	1.75	1.50	1.68	1.35	1.45	1.14	1.39	1.30	1.20	1.43	1.55	1.70	1.75	1.20	1.482
Average															
at 20%	.22	.29	.25	.18	.18	.00	.19	.22	.15	.18	.17	.21	.29	.15	.20
at 40	.39	.43	.41	.32	.32	.00	.32	.38	.27	.33	.32	.38	.43	.27	.35
at 60	.58	.59	.58	.44	.46	.10	.45	.49	.40	.51	.46	.53	.59	.40	.50
at 80	.74	.85	.85	.60	.59	.26	.58	.63	.53	.66	.61	.73	.85	.53	.67
at 100	1.29	1.05	1.26	.97	1.10	.76	.87	.85	.85	.98	1.09	1.13	1.29	.85	1.04
Excess in cross direction over that in machine direction:															
at 20%	.12	.19	.14	.08	.08	....	.15	.14	.08	.11	.11	.15	.19	.08	.12
at 40	.23	.30	.25	.16	.15	....	.30	.28	.16	.26	.22	.29	.30	.15	.24
at 60	.35	.44	.40	.24	.23	.03	.45	.37	.26	.41	.33	.43	.45	.23	.36
at 80	.47	.71	.67	.37	.30	.11	.62	.54	.38	.55	.47	.65	.71	.30	.52
at 100	.93	.90	.84	.77	.70	.77	1.06	.90	.70	.90	.92	1.15	1.15	.70	.89

* All ream weights calculated on this basis for direct comparison with Kraft.
** This sample omitted in general averages.

in the cross direction with a relative humidity of 80 per cent. It will be noted that up to 80 per cent humidity the curves are approximately parallel but at 100 per cent humidity this condition no longer obtains.

Summary

The apparatus for testing the behavior of paper at different humidity conditions, originally devised by Davis,[4] has been improved and simplified and tests made upon various kinds of paper under different humidity conditions. It has been found that if the paper is completely dehydrated and then tested under increasing humidity conditions, more concordant results may be obtained and the paper comes to equilibrium in a much quicker time than when the tests are started at a high humidity and the humidity conditions are subsequently lowered.

For the papers tested the following conclusions are drawn:

(1) The percentage elongation between 20 and 80 per cent relative humidity is approximately a straight line curve.

(2) The elongation is considerably greater in the cross direction than in the machine direction.

(3) Waxed paper is not appreciably affected below 60 per cent humidity.

(4) In most cases the increase in elongation between 80 and 100 per cent humidity is considerably greater than the increase between 60 and 80 per cent humidity.

The papers tested above were obtained on the open market and, aside from ream weight and thickness, no other tests were made upon them. It should be interesting to investigate the effect of different degrees of sizing on papers of the same fiber furnish and weight, for instance to compare the elongation with the percentage of rosin and with water-penetration tests. It would also be interesting to compare papers made from the same furnish and the same weight in an uncalendered, calendered and supercalendered sheet, respectively.

To Be Discussed at Next Meeting

This paper was prepared for publication at the request of the Chairman of the Paper Testing Committee, TAPPI. As a part of the standardization work of committees it will be discussed in the next annual meeting of the association. It is hoped that paper technicians will give it careful consideration in the meantime so as to be prepared to present their comments at the meeting.

Paper Testing Committee, TAPPI
B. W. Scribner, Chairman,

[4] Loc. cit.

Stained or Marbled Papers

Buntpapier-Fabrikation. August Weicheit. Third edition, revised and enlarged by the technical staff of Papier-Teitung. Verlag von Carl Hofmann GmbH, Berlin SW 11. 247 illustrations and 273 pasted samples. 448 pages, including 35 pages of advertisements. Price, 30 gold marks.

The first edition of this work appeared in 1903, the second in 1908. This third edition, prepared by the technical staff of Papier-Zeitung, is greatly enlarged, both in size and in the number of illustrations and the samples of paper; when it is considered that each book contains 273 samples, pasted on the pages, many of which are really two samples pasted in one space, one can realize the expense of the undertaking.

The work opens with a brief chapter on hand staining; this is followed with a description of machine staining and of the methods of drying. Chapter V (74 pages) discusses the dyes, fillers and other materials used in the manufacture of stained papers. The principal part of the book is devoted to a description of the various types of papers; there are 34 classes of uniformly colored papers, 10 classes of multicolored papers; 7 classes of marbled papers and 4 classes of applied art papers. Among the classes may be mentioned leather papers, metal coated papers, irridescent papers, carbon papers, stencil papers, gummed papers, lithographic papers, gelatin papers, glazed papers, Chromo papers, photographic papers, crepe papers, batik papers, etc.

The book closes with a brief description of the manufacture of boxes and cartons.

It would seem that this book should be in the hands of every manufacturer interested in this large class of papers.—C. J. W.

Pacific Northwest Shippers Recommend Cartons

[FROM OUR REGULAR CORRESPONDENT]

Portland, Ore., July 22. 1927.—The Pacific Northwest Shippers conference through its advisory board has recommended paper box cartons in small units for Pacific Northwest apples. A demonstration of the new pack was given before this board and received favorable reaction both from that body and from railroad officials. This movement away from the wooden boxes for large quantities will promote the sale of extra fancy apples and will stimulate quantity sale in all grades. The Great Northern Railway has already adopted this plan as advisable for the apples they handle. The idea also is that for small families or limited consumption in any sale, the small paper cartons will be preferable. Paper box manufacturers are looking toward a general pick-up in volume with this new move.

A Study of the Mullen Paper Tester*

Effect of Clamping Device on Test Results

By Leo W. Snyder, Junior Engineer, U. S. Bureau of Standards

In the construction of the Mullen Paper Tester which is extensively used for the determination of the bursting strength of paper, it is of importance that in the construction of this instrument, those parts whose design affects in any way the accuracy of the tester, should be made of materials whose physical properties do not vary through constant usage or deteriorate to the extent that frequent renewals become necessary. In the present design of this instrument rubber washers are used as the gripping surface on the clamps for securing the paper in position for test. These rubber washers when new are quite soft and resilient, but after a period of use the rubber becomes hard and possesses only a slight degree of elasticity. On the present type of Mullen bursting strength tester, it has been observed that when paper, particularly that of high bursting value, is subjected to the testing pressure, there is noticeable a slipping of the paper under the clamp, which is not uniform and gives rise to inconsistent test results. To study the degree to which the accuracy of the tester is affected by the design of the clamping device, bursting tests of paper were made using not only clamps furnished with rubber washers, but also all-metal clamps. The effect of changing the design of the base plate was also studied.

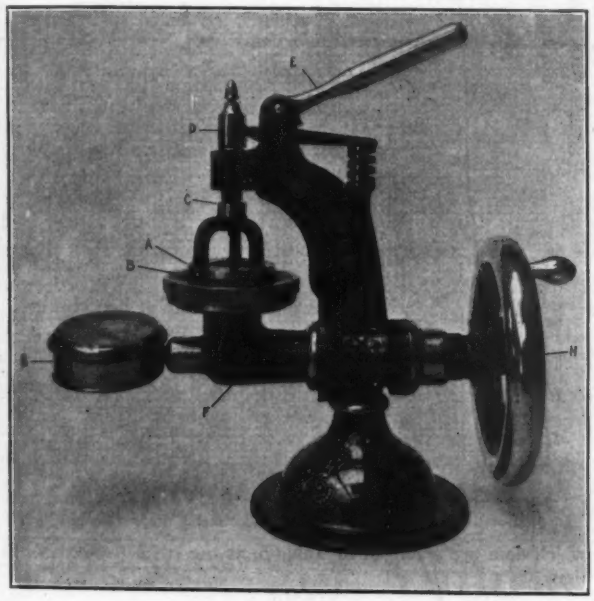

FIG. 1

For the purpose of the tests, a Mullen paper tester of the conventional type was used. The same tester was used throughout the tests. In this instrument the clamping device, as shown in Fig. 1 consists of a base plate (B) and the clamping head (A), the latter being a metal ring approximately 64.8 mm. (2.5 inch) in external diameter and 9 mm. (⅜ inch) thick, with a central opening 31.5 mm. (1.25 inch) in diameter. As ordinarily designed a rubber washer is mounted on the lower surface of the clamping head so that its central aperture is in alignment with that of the metal ring. On the upper side of the ring is a metal tripod bearing equally around the upper surface of the clamping head. At the vertex of the tripod is a socket-bearing for a ball joint (C). The clamping force is applied through a vertical shaft (D), by means of a cam and lever (E). As the lever is lowered, the cam is rotated through its greatest eccentricity and the vertical shaft is forced downward against the clamp, securing the paper in position for test. Immediately below the paper is a rubber diaphragm enclosing a chamber (F) filled with glycerin. A piston when advanced by a handwheel (H), causes pressure to be exerted through the medium of the glycerin to the under side of the paper until rupture occurs. The bursting pressure is indicated by a Bourdon tube pressure gage, (G), equipped with a maximum reading pointer.

Before starting the investigation, all gages used on the bursting strength tester were calibrated, and the pressure cylinder examined and refilled with glycerin so as to be free from air pockets. Every effort was made to keep the clamping force constant throughout the investigation. To eliminate any effect from variation in the rate of loading, an important factor to be considered, care was taken to always rotate the handwheel at about the same speed (approximately 120 r.p.m.). Fifteen different samples of paper were selected for this investigation. Each sample was allowed to remain in an atmosphere of 65 per cent relative humidity and 70 degrees F. for at least 2 hours before testing. A description of the kinds of paper used is given in Table 1.

TABLE 1
DESCRIPTION OF TEST PAPERS

Sample Number	Kind of Paper	Weight 500 sheets 25x40 lb.	Fiber Composition %
1	Bond	54	Rag 50, Coniferous 50
2	Ledger	96	Rag 100
3	Kraft Wrapping	204	Sulphate 100
4	Manifold	23	Rag 50
5	Sulphite Bond	64	Sulphite 100
6	Kraft Wrapping	64	Sulphate 100
7	Chart	136	Rag 100
8	Manila Folder	136	Groundwood 5, Coniferous 95
9	Tag Board	190	Groundwood 55, Coniferous 45
10	M. F. Book	53	Coniferous Bleached 85, Deciduous Bleached 15
11	Sulphite Bond	56	Coniferous Bleached 100
12	Kraft Wrapping	60	Sulphate 100
13	Ledger	90	Rag 100
14	Chart	132	Rag 100
15	Drawing	238	Rag 50, Chemical Wood Bleached 50

Included in the tests were clamps equipped with both new and old rubber washers. The three all-metal clamps, each of different design, were furnished by the manufacturer of the tester, who likewise submitted one base-plate of new design, for the purpose of comparison, in the effect on test results, with the present style of spirally grooved base plate.

Effect of Rubber Washers

To obtain data on the extent of the variation of the bursting strength of paper when clamps with rubber washers are used, tests were made with two clamps having new rubber washers and two clamps having old rubber washers. These data are arranged in Table 2 for a comparison of the results obtained with each clamp and sample. Each figure in the table is the average of twenty bursts.[1]

[1] All bursting values in the tables are expressed in "points," an arbitrary term, meaning approximately pounds per square inch.

TABLE 2
COMPARISON OF BURSTING STRENGTH OF PAPER WITH OLD AND NEW RUBBER WASHERS

Clamp No.	Paper sample number 1	2	3	Description of washer
1	30.2	81.4	148.0	Old rubber washer
2	28.5	80.3	140.9	Old rubber washer
Average	29.4	80.9	144.5	
3	31.3	87.5	148.6	New rubber washer
4	31.9	87.9	149.1	New rubber washer
Average	31.6	87.7	148.9	

* Published by permission of the Director of the National Bureau of Standards, U. S. Dept. of Commerce, Washington, D. C.

In testing samples 2 and 3 (Table 2), an actual slipping of the paper was observed; the apparent degree of slipping decreasing when using old rubber washers. The differences in averages noted under sample 1 are presumably due to a small amount of slippage that was not noticeable.

Effect of All-Metal Washers

For study of the effect of eliminating the rubber washer from use as a gripping surface, tests were made using the three all-metal clamps furnished by the manufacturer. These clamps varied only in the character of their gripping surfaces, and for reference are designated by numbers. Clamp 5 had a smooth sand-blasted surface, while clamp 6 had an unfinished machine cut surface showing slight concentric grooves that were not of sufficient depth to form an inpression when gripping. Clamp 7 had decided concentric grooves machined over the entire surface.

The results of the tests of the three all-metal clamps are arranged in Table 3 for a comparison with the results for the two clamps having new rubber washers. As in Table 2, the figures are for the average of twenty bursts for each clamp and paper sample.

TABLE 3
COMPARISON OF ALL-METAL CLAMPS WITH RUBBER WASHER CLAMPS AS REGARDS AVERAGE TEST RESULTS

Clamp No.	Paper sample numbers 4	5	6	7	8	9
3 and 4	14.1	30.3	60.4**	88.2**	119.0**	154.8+**
5	13.4	28.1	54.8	82.2	104.3	135.8*
±Var.	−0.7	−2.2	−5.6	−6.0	−14.7	−19.0
%Var.	4.9%	7.3%	9.3%	6.8%	12.4%	12.3%
6	12.9	27.6	54.3	79.9	107.3*	131.6*
±Var.	−1.2	−2.7	−6.1	−8.3	−11.7	−23.2
%Var.	8.5%	8.9%	10.1%	9.4%	9.9%	15.0%
7	13.4	28.1	53.3	79.4	105.8*	140.4**
±Var.	−0.7	−2.2	−7.1	−8.8	−13.2	−14.4
%Var.	5.0%	7.3%	11.8%	10.0%	11.1%	9.3%

Clamp No. 3 and 4—New rubber washer types.
Clamp No. 5—Smooth all-metal clamp, sand blasted surface.
Clamp No. 6—All-metal clamp, unfinished machine cut surface.
Clamp No. 7—All-metal clamp, grooved machine surface.
* Slight slip in few tests included in average.
** Decided slip throughout tests.

The plus or minus variation and the per cent variation, represent the actual numerical difference and the per cent difference respectively, between the bursting strengths obtained with clamps 5, 6 and 7, and the average bursting strength obtained with the two washer clamps 3 and 4.

Table 4 has been prepared to show the variation between the individual tests with each clamp and sample. These variations are expressed in the following manner. The difference of each individual test from the average of the twenty tests is expressed as its actual numerical difference, irrespective of sign. These numerical differences are then averaged and figured as a per cent of the average bursting strength of the twenty individual tests.

TABLE 4
COMPARISON OF ALL-METAL CLAMPS WITH RUBBER WASHER CLAMPS AS REGARDS MEAN PER CENT DEVIATION

Clamp No.		Paper sample numbers 4	5	6	7	8	9
3 and 4	Average	14.1	30.3	60.4	88.2	119.0	154.8
	% dev.	7.4	3.1	6.3	3.8	14.3	....
5	Average	13.4	28.1	54.8	82.2	104.3	135.8
	% dev.	8.5	6.0	5.6	2.8	16.9	3.2
6	Average	12.9	27.6	54.3	79.9	107.3	131.6
	% dev.	8.5	4.3	5.9	1.8	17.0	3.5
7	Average	13.4	28.1	53.3	79.4	105.8	140.4
	% dev.	8.2	6.4	6.9	3.5	13.5	4.1

Chart 1 was plotted from the data of Table 3 giving a graphic representation of the approximate difference that may be expected from the use of all-metal clamps as compared with rubber washer clamps.

After completing the comparative tests with the all-metal and rubber washer clamps, the newly designed base plate was tested for comparison with the present style of spirally grooved base plate. In testing the new base plate, clamp 6 was selected, for this clamp gave consistently lower results in the previous tests. The test data obtained with the new and old base plates are given in Table 5 for a comparison of averages as found from a series

TABLE 5
COMPARISON OF OLD AND NEW BASE PLATES AS REGARDS AVERAGE TEST RESULTS

Clamp and Base	Paper Samples 10	11	12	13	14	15	
A	15.4	28.4	54.7	76.5	98.8	119.8	Rubber clamp and Old base
B	15.3	29.1	53.8	76.6	99.6	120.8	Rubber clamp and New base
C	14.0	26.9	51.1	73.9	96.5	112.2	Metal clamp and Old base
D	14.9	27.9	51.8	72.7	94.0	107.7	Metal clamp and New base

of twenty tests on each clamp and base plate. In addition to Table 5 which shows a comparison of averages only, it was thought advisable to show the variation between individual tests,

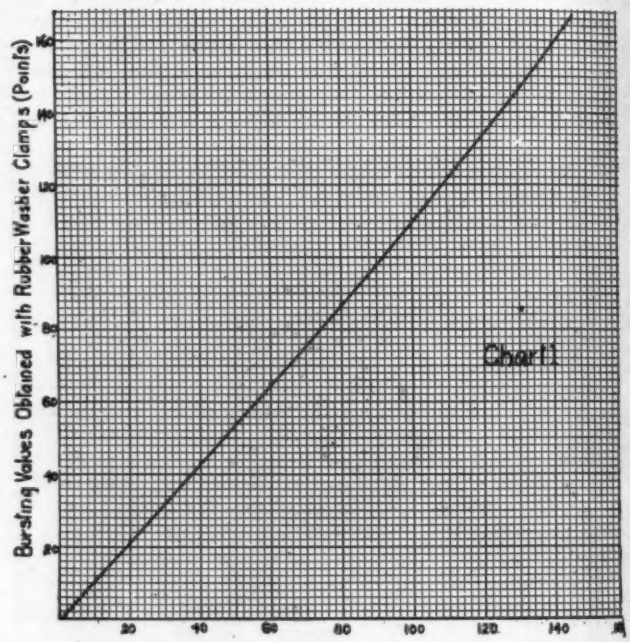

CHART 1
Bursting Values Obtained with All-Metal Clamps (Ponits)

which data are arranged in Table 6, as the mean per cent deviations.

TABLE 6
COMPARISON OF OLD AND NEW BASE PLATES AS REGARDS MEAN PER CENT DEVIATION

Paper sample No.	10	11	12	13	14	15	Description of clamp and base
Average	15.4	28.4	54.7	76.5	98.8	119.8	Rubber clamp and
Per cent deviation	4.1	3.5	3.9	4.4	3.1	3.7	old base
Average	15.3	29.1	53.8	76.6	99.6	120.8	Rubber clamp and
Per cent deviation	5.2	5.5	4.6	4.3	3.6	3.9	new base
Average	14.0	26.9	51.1	73.9	96.5	112.2	Metal clamp and
Per cent deviation	2.5	3.2	3.5	3.2	2.9	4.0	old base
Average	14.9	27.9	51.8	72.7	94.0	107.7	Metal clamp and
Per cent deviation	3.8	2.3	3.2	3.7	2.2	4.5	new base

Discussion of Results

The fact that the factor of slippage has a direct influence upon the bursting value of a paper sample, is indicated in the equation[1]

$$2\pi RT = \pi R^2 P \text{ or } P = \frac{2T}{R}$$

in which a relation has been established between the strength of the paper about the great circle of a spherical shell and the force of the fluid pressure tending to rupture the paper along this great circle. In this equation (P) is equal to the bursting pressure, (T) the tensile strength and (R) the radius of curvature of the paper at the instant of rupture. When slippage occurs there is an increase in effective bursting area and a consequent decrease in (R) which from the above equation would indicate an increase in the bursting pressure.

[1] Marks, Mechanical Engineering Handbook, page 394.

It will be noted from the figures given in Table 2 that the old rubber washers gave consistently lower results than the new washers. These results were summarized in a brief paper presented by the author at the annual meeting of the Technical Association of the Pulp and Paper Industry, February 24, 1926. Results later obtained by Allen Abrams[1] of the Cornell Wood Products Company, show good agreement with them.

There will be noted in Table 3 considerable variation between averages of the rubber washer and the all-metal clamps. The higher in slipping was observed, which is apparently, more or less in proportion to the increase in bursting strength. No appreciable amount of slippage was observed when testing the all-metal clamps, until variation and the degree of slippage increasing as the bursting pressures are increased. In the case of sample 5, Table 3, where there is no apparent slippage, there is however, a difference in average of the rubber washer and the all-metal clamps. The higher values obtained with the rubber washer clamps are apparently due to a small unnoticeable amount of slippage, resulting in an increase of the effective bursting area. The slippage of the paper however, did become apparent when testing sample 6 with clamps 3 and 4 and continued throughout the testing samples 7, 8 and 9. As the samples of higher bursting values were tested, an increase in slippage was observed when testing the all-metal clamps, until sample 8 and 9 were tested. The slippage, however, was not noticeable in every individual test, but only occurred in a few of the twenty tests, all of which were included in obtaining the final average. In arranging Table 4, it was expected that the tabulation would show that, as all the all-metal clamps gave consistently lower results, their corresponding mean per cent deviations would be lower. This, however, did not prove to be true, for although the values noted in Table 4 indicate that the mean per cent deviations are fairly uniform, there are instances in which the per cent deviations are greater than the differences in averages between clamps. The higher per cent deviations can not be considered wholly as a function of the difference between clamps, but as a factor which is influenced chiefly by variations in the thickness, formation and character of the fibers entering into the manufacture of the paper. The comparative test values obtained with the old and new design of base plates, arranged in Tables 5 and 6, indicate that there is not a sufficient difference in test results to justify a change from the present style of spirally grooved base plate.

[1] A Study of the Mullen Tester on Paper Board. Paper Trade Journal, 81, No. 6, August 6, 1925.

Conclusions

After a careful analysis of the data obtained with the all-metal and rubber washer clamps, it can be definitely stated that all-metal clamps have many advantages over the rubber washer clamps namely: the sample is more securely held with the metal than with the rubber washer clamps and deterioration does not affect the surface of the metal clamp to the extent that frequent renewals become necessary. Of the three all-metal clamps tested, clamps 5 and 6 proved most successful in combination with either old or the new designed base. The differences noted in either combination are small and well within the allowable limits of error for a paper testing device of this nature. Should a change be made from the clamp now in use, the user should make comparative tests with the present style of clamp in order to obtain a factor for calculation of comparative results. A graph such as given in Chart 1 may be used for conversion purposes.

A change to the new style of clamp will undoubtedly cause a slight confusion in comparing results with those obtained with the old style of rubber washer. A proposed method that would possibly lessen confusion would be to reduce the area of the aperture in the base plate and clamping head until the test results are approximately the same as those obtained with the present style of clamp and base. Since replacing rubber washer clamps with all-metal clamps will lower the bursting values, and reducing the area will raise the bursting values, it will be necessary to establish some definite reduction in area, such that the net result of both changes will be zero. Additional calculations and experiments are necessary before any definite recommendations can be made as to the reduction in size of the present aperture.

Waterproofing and Hardening Paper by Means of Aluminum Acetate*

By A. Lambrette

It occurred to us, one day, to apply to paper and cardboard the aluminum acetate process, which is one of the standard methods in the waterproofing of fabrics. It consists in impregnating the fabric with a fresh solution of aluminum acetate and then drying at a moderate temperature; the aluminum acetate decomposes on heating, the acetic acid evaporating, while hydrated alumina remains behind and fills the spaces between the fibers, thus waterproofing the fabric. As long as it has not been heated, the hydrated alumina is gelatinous; but when it is heated to a sufficiently high temperature, it is dehydrated and converted into a powder which easily falls off the fibers. For this reason the fabrics are dried rapidly below 40 degrees C., for fear of decomposing the hydrated alumina during drying.

This is not so dangerous when treating paper or cardboard as with fabrics; for a powder, which would easily fall off from the relatively loose meshes of the latter, would be held in the much smaller pores of the former. On the other hand, this transformation could be used to harden as well as waterproof paper; on drying the impregnated cardboard at low temperature, it holds the hydrated alumina and at the same time retains a certain degree of flexibility; on drying at high temperature, the alumina loses its water of hydration, and at the same time the board dries and shrinks shutting in its pores the anhydrous alumina, which makes it harder and more brittle than wood.

The procedure is quite simple. The aluminum acetate solution is prepared by mixing a solution of 1 kilo of alum in 35 liters of water and a solution of 1 kilo of lead acetate in 35 liters of water, and decanting from the precipitated lead sulphate. The solution should be used the same day as it is prepared, and it must not be exposed to the light which would cause partial decomposition of the aluminum acetate. When treating cardboard, it is immersed in the solution until completely soaked through, and it is then dried; paper can be passed continuously through the solution.

The more porous and absorbent the paper or board, the better the result; in order to properly penetrate sized papers, which have but a low permeability, they must be left in the solution so long that they begin to disintegrate. In such a case, either the operation must be carried to such a point as to injure the strength, or else the alumina deposit will be hardly more than superficial, and consequently of little or no value. Grey cardboard gives good results, as do also strawboard and straw paper.

The process can be used for hardening and waterproofing molded pulp articles. It is also useful for waterproofing grey

* Translated from La Papeterie 48, 666 (July 25, 1926), by A. Papineau-Couture.

cardboard used in the manufacture of cheap footwear, suitcases and similar articles, or joints, for which purposes impregnated grey board is considerably cheaper than leather board. In the case of objects which entail considerable waste, it is preferable to impregnate only the blanks, after they have been cut out, rather than the whole sheet of cardboard, thus greatly reducing the consumption of alum and of lead acetate, and at the same time facilitating and hastening the impregnation.

Application of this treatment to straw paper gives a wrapping paper which is much cheaper than paraffined or tarred papers, and which has the further advantage that it can be sized; waterproof board, for instance, could be obtained by pasting a liner of treated straw board. Still another application would be the manufacture of waterproof bags and envelopes. Such bags would be very useful for wrapping fruit or hygroscopic materials; and in this connection it should be noted that alumina imparts neither odor nor taste to the paper, and is unaffected by almost all products which are generally wrapped in paper.

Waterproofed corrugated board is another product which would not lack numerous applications.

We tried this process for the impregnation of tubes used in spinning, but the results were hardly encouraging. Only fairly thick tubes are used, and it is necessary that they should be very hard; thick, stiff papers must therefore be used, which do not readily absorb the aluminum acetate solution. Impregnation of the paper may give rise to irregularities in the weight of the sheet, while impregnation of the finished tube is out of the question, the glue used in its manufacture being practically waterproof and limiting impregnation to the outer ply of the tube—the latter is waterproofed, but is not hardened. If the paper used is of such a nature that it does not require to the hardened, the waterproofing effect obtained is quite insignificant.

Special Numbers

Each summer the two German paper magazines, *Der Papierfabrikant* and *Wochenblatt fuer Papierfabrikation,* present their readers with their special numbers. These numbers are really books in size (the former with 272 pages and the latter with 296 pages) and in the care which is exercised in their printing. Of course, like the special numbers which follow our annual papermaking convention, they feature advertising (196 and 172 pages in the two numbers); however, this advertising not only makes the presses go round but they bring to those who study them a wealth of information.

The special number of the *Wochenblatt* opens with a history of papermaking in Silesia from 1741 to 1806; this is followed by a chapter of von Hössle's history of the paper mills of the Rhine provinces. Strobach discusses the cooking and bleaching of rags, in the form of two letters; he gives, in the form of tables, the cooking practice of Dropisch in 1881, of Hoyer in 1887, of Dahlheim in 1896, of Schubert-Müller in 1919 and of Korschilgen and Selleger in 1923. Hans Wrede discusses Mexican paper manufacture, and Ulrich Kirchner presents an illustrated description of his visit to many of the Austrian paper mills. Weiske and Rupprecht describe, with diagrams, the control systems for multiple motor drives, while G. Lest adds another chapter to his discussion of heat and power in paper mills. Paul Klemm shows how the pulp from spruce and aspen may be distinguished by means of staining with aniline sulphate and methylene blue, a colored plate showing that the aspen gives a blue, the spruce a yellow color with these stains. Bruno Possanner gives a comparative study of static and dynamic strength testers.

The *Fest-und Ausland-Heft of Der Paperfabrikant* also opens with a history of the paper industry in Silesia by P. Martell. Krais, Biltz and Renner discuss the digestion of plant materials by dilute nitric acid, while later in the number Suida and Sadler treat of the action of nitric acid on beech wood. Brecht and Schaun study the effect of various factors upon the determination of the degree of beating of pulp, using the Schopper-Riegler apparatus, with the idea of establishing a normal method for this property; they compare their findings with those obtained by the Canada Technical Association. Erik Hägglund continues his study of the chemistry of the sulphite process with a description of his experiments on the digestion of wood with a cooking acid of low sulphite content. W. Weltzien considers the determination and the significance of the alkali-soluble portion of artificial silk (rayon). Fritz Rühlemann also discusses the means and methods of determining the degree of beating of pulp, considering the methods of Klemm, Stark, Schopper-Riegler and Schubert. Hermann Wenzl, continuing his studies on bleaching, has studied the effect of metals and metallic salts upon hypochlorite and the bleaching process. Weiske and Rupprecht discuss, with diagrams, the regulation of continuous grinders. v. Possanner gives the results of strength tests of several half stoffs by means of the Lampen ball mill and by beating in the hollander; while the results by the two methods are somewhat similar, the author is of the opinion that, although the beating in the hollander takes longer, it gives a more nearly correct view of the behavior of the fibers in the actual manufacturing process. P. Waentig shows, by means of microphotographs and tables, the effect of strong sodium hydroxide solutions upon cellulose. Finally, J. Hausen describes and illustrates an evaporator for the waste liquors of the sulphate process.

All these articles, so briefly mentioned here, will be properly abstracted in the Section on Abstracts, which is a feature of the Technical Section of the PAPER TRADE JOURNAL.

One interesting feature of these two special numbers is the number of types of papers on which the pages are printed. In the Wochenblatt, for example, eighteen different firms are represented, apparently one or more signatures being printed on each style of paper. The name of each firm is printed at the bottom of the page, so that their product can be recognized. While it is realized that this adds to the cost of the production of these numbers, the reviewer wonders if it might not be adopted by the American journals.—C. J. W.

American Writing Balance Sheet

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 1, 1927.—The following is the balance sheet of the American Writing Paper Company, Inc., as of June 30, 1927:

ASSETS

Current Assets		
Cash		$ 1,070,666.84
Notes and acceptances (net)		50,453.46
Accounts receivable (net)		1,362,773.99
Inventories		2,796,713.87
Total current		$ 5,280,608.16
Plants and equipment (net of depreciation)		$10,546,106.42
Choral Properties, Inc., etc.		550,000.00
Investments		2.00
Prepaid expenses		61,161.27
Deferred taxes		2,439.06
Other deferred assets		52,455.71
Trade marks, etc.		1.00
Total capital		$16,492,773.62

LIABILITIES

Current Liabilities		
Accounts payable		$ 526,022.23
Accrued accounts		99,650.38
Total current		$ 625,672.61
First mortgage bonds		$ 5,500,000.00
Serial notes		1,000,000.00
Preferred stock		9,000,000.00
Common stock, 155,000 shares, no par value, March 1, 1927..		318,522.33
Gross earnings March 1 to June 30—4 months..$248,968.18		
Less: Bond interest March 1 to June 30..... 123,333.34		
	125,634.84	
Less: Receiver losses, Jan. and Feb., including interest, $61,666.66	77,056.16	48,578.68
Total		$16,492,773.62

Index Technical Section, Vol. 84, Paper Trade Journal

(January to June, 1927)

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

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Use of Sulphur in Preparation of Caustic Cooking Liquors

Abstract of Patents

The primary object of this process is the introduction of the required amount of sulphur into soda cooking liquor in such a form that its maximum digestive qualities are made use of with the minimum amount of loss through decomposition or otherwise. A further object of the process is the introduction of the required amount of sulphur at a point in the cycle of operations where its heat of combustion may serve a useful purpose without having to use a special burner or having to cool the resulting gas or pass it through an absorption tower.

Addition of sulphur to the green liquor or to the white liquor has been proposed; but this results in the formation of compounds which are readily decomposed in the digester into compounds which produce gases having a most disagreeable odor, and moreover the formation of such gases causes a material loss of sulphur, which must be replaced as the cycle is repeated.

If, however, the sulphur be added to the calcium carbonate sludge produced in the slaking of the leached black ash and the mixture calcined in a kiln, the sulphur will eventually reach the cooking liquor in a desirable form. Thus, when this calcined mixture is caused to react with sodium carbonate leached from the black ash, there is formed a more or less stable sulphur compound, in addition to the production of caustic soda. This more or less stable sulphur salt is suspected to be sodium thiosulphate ($Na_2S_2O_3$), and may then be separated from the insoluble calcium carbonate, the solution containing also the caustic soda. The liquid may then be used, with or without additions, as the cooking liquor.

This process is protected by United States patent 1,488,829, issued to J. E. Plumstead on April 1, 1924; and the cooking liquor consisting of a mixture of hydroxide and thiosulphate is covered by patent 1,488,830, issued on the same date.

In the specifications the inventor states he has reason to believe that CaSxOy is formed by the simultaneous combustion of sulphur and calcination of the calcium carbonate, although other salts also may be formed at this stage. This CaSxOy is converted in the causticizing operation into the corresponding sodium salt, with the result that the cooking liquor contains chiefly caustic soda and sodium thiosulphate, the presence of both of which has been proved by chemical analysis. While recognizing that many of the CaSxOy salts which might be formed in the calcination step are unstable and readily decomposed, and that for this reason there is some doubt as to their actual formation, the inventor bases his conclusion that they are formed on the fact that sodium thiosulphate has actually been found by chemical analysis of the cooking liquor. Though other salts of sodium and sulphur may be present, he attributes most of the efficiency of his process to the presence of sodium thiosulphate. He has also found that a remarkably small quantity of sulphur need be added to the cycle when it again reaches this point, demonstrating the advantage of this combination of sulphur and sodium as a cooking agent over the sulphur salts used heretofore. Sodium sulphite also may be used in alkaline cooking liquors with beneficial results.

By the introduction of the sulphur to the cold end of the lime recovery system, the heat of combustion of the sulphur is utilized to the fullest extent, and less external heat is necessary to completely remove the water and the carbon dioxide from the calcium carbonate when this combustible material is mixed with it than when it is not.

The exact amount of sulphur to be added varies with the amount of calcium carbonate to be calcined, the amount of free lime desired in the kiln product, the character of the liquor desired, and the character of the material being treated. However, the control of sulphur secured by the method is most accurate, as the sulphur deficiency of the cycle may be determined at any one of several points by chemical analysis, and, owing to the stability of the compound carrying the sulphur, the losses are reduced to a minimum.—A. P.-C.

To Install New Fourdrinier at Chillicothe

[FROM OUR REGULAR CORRESPONDENT]

CHILLICOTHE, Ohio, August 1, 1927.—Construction of the new paper machine building for the Chillicothe Paper Company will be started immediately by the H. K. Ferguson Company, Cleveland.

Contract for the construction of the two story "L" shaped brick structure, 540 feet long, 40 feet wide and 80 feet wide on the "L" has been awarded by officers of the company, consisting of Hector McVicker, E.F. Bearce, Austin Story and Lyle Evans.

A maximum number of local workmen and as much local material as possible will be used in the construction, according to announcements of paper company officials.

The Ferguson company, known here for its work recently on the new office building of the Mead Pulp and Paper Company, have specified in the contract that local people will be given preference in excavation and brick and concrete work.

The total of the bid of the successful firm was not made known by company officials. Costs of the structure and purchase of a 156 inch paper machine which will increase the company's daily output of high grade book paper from 30 to 70 tons are being financed by issue of $400,000 in stock, half preferred and half common.

The enthusiasm with which stockholders have greeted this latest venture of the company, is shown by the oversubscription of the common stock which has been issued to stockholders in a ratio based on their previous holdings. The period in which stockholders were granted an opportunity to avail themselves of this investment expires today.

Part of the $200,000 issue of preferred stock is still available to investors, it is announced. Persons desiring to take some of this issue may do so upon applying at the company's offices in the Ross county block.

It is expected that the new building will be completed in 100 working days, in plenty of time for the new paper machine which is to be delivered here by December 1. The machine has been ordered from the Rice, Barton & Fales Company, Worcester, Mass. Installation will require about eight weeks, it is stated.

Increases Shipping Through Canal

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., August 1, 1927.—Expansion of the International Paper Company's program for shipping by way of the Champlain Barge Canal is seen in the announcement that beginning today products of the South Glens Falls mill will be shipped by barge from Fort Edward. A fleet of motor trucks under the supervision of Morris Mills, of the South Glens Falls plant, will convey the goods from South Glens Falls to the Fort Edward terminal. Later in the week the barge with a capacity of 650 tons will clear for New York City.

The I. P. Co. this season has a large fleet of barges in operation on the canal plying between Fort Edward and New York City. On the return trips the barges usually carry a cargo of raw materials for one of the I. P. mills in the Hudson Valley.

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COST ASSOCIATION OF THE PAPER INDUSTRY

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Conducted by THOS. J. BURKE, C.A., Sec-Treas

Accounting for Capital Assets*

By C. K. Richmond, Asst.-Secy., The Stein-Block Co.

The proper accounting for capital assets is of primary importance because as the name implies, it deals with the assets representing invested capital-property. Any loose thinking on the subject results in a day of reckoning and, on this day of reckoning, a discovery will be made that capital has been impaired, or augmented. Pending the discovery of the true situation, the books of account will reflect an untrue picture of things and many steps will have been taken on the basis of false information.

The proper handling of capital assets is important to the purely cost man for the contra accounts affected are those of income and expense. When a capital asset account is incorrectly handled usually an income account is distorted also and costs do not reflect the true condition.

In order to bring the subject within the scope of the time available I am going to take the liberty of eliminating such capital assets as goodwill, patents, lease holds, organization expenses capitalized, and all other so called intangible assets. I will also take the liberty of excluding mineral and oil properties subject to exhaustion—the so-called wasting assets. I will cover only the accounting for fixed assets used in the conduct of a manufacturing business. In addition to making the subject possible from a time point of view, this will also make the interest universal.

To assure a practical treatment, what I have to say will largely reflect the policy and the experience of the Stein-Bloch Company in respect to this problem—with a background of seventy-five years of manufacturing and continuous property records.

Classification

Fixed assets are usually classified on the general ledger. This is to show the nature of the investments and to provide for depreciation rates that correspond more exactly to the life of the various properties.

An adequate classification for a fair sized manufacturing concern might be approximately as follows:

Plant Land
Land Improvements
Buildings
Building Equipment
Machinery
Machine Tools, Jiggs and Fixtures
Hand Tools
Furniture and Fixtures
Automobiles
Construction in Progress

PLANT LAND.—The land which the buildings occupy or which is necessary to the proper workings of the plant constitutes plant land. It does not include investment land. Plant land may be charged at the time of acquisition with the cost of purchase and all expenses incident thereto, such as commissions to real estate agents, taxes assumed, etc. Also, there may be added the cost of filling, draining and other purely land expenses. Land is not subject to depreciation.

LAND IMPROVEMENTS.—This account contemplates the total cost of fences, walls, industrial paving, railroad sidings, and the like. It is subject to depreciation.

BUILDINGS.—The building account starts with the original cost of plant buildings, whether acquired by purchase or erected by contract. This original cost includes the builders' fees, the architects' fees, insurance protection, and interest on money borrowed while construction is in progress.

BUILDING EQUIPMENT.—The building equipment account includes the cost of heating system, gas, sprinkler and air piping, plumbing, electric wiring and fixtures, elevators, and such other realty fixtures as would ordinarily be abandoned were the property sold. They are the fixtures that could be pledged with the building under a mortgage or bond issue. From a cost point of view, it is important to keep this building equipment separate from the building proper because a different depreciation rate applies.

MACHINERY.—The starting point of the machinery account is the cost of machinery, motors, furnaces, and ovens, shafting, pulleys, and the like. To the cost of the equipment itself may be added freight-in and erection cost. From an accounting and legal point of view the distinction between the machinery account and the building equipment account is an important one. It enters into the calculation of net equity where a mortgage is involved and the rights of tenant and landlord in the case of rented property. It is possible, by the way, to have a building equipment account where the buildings are not even owned.

MACHINE TOOLS, JIGS, AND FIXTURES.—It is advisable to carry machine tools, jigs, and fixtures in an account separate from machinery, because from the point of view of depreciation their life is much less. Esquerre defines the machine proper as that part of the whole apparatus, which by itself or through auxiliary devices produces the required motion. The machine tool on the other hand is a part of the machinery which performs the final function. The distinction is not difficult when considered specifically. A machine may last over a period of twenty years but a tool may be destroyed the first time it is used. If the value of the machine and of the machine tool is carried in one account, it must be adjusted for every tool destroyed through carelessness or faulty adjusting. On the other hand, if the machinery is kept

* From N. A. C. A. Bulletin.

by itself a more permanent record may be made, giving the date acquired, the complete cost, estimated life, depreciation rate, the residual value, location, etc. By carrying machine tools, jigs and fixtures in a separate account full benefit of placing them in the custody of the storekeeper is provided; for it makes possible a book inventory which can readily be checked and priced.

Shop and Hand Tools.—This asset is of such nature that it should always be stated by itself. In it are the value of saws, hammers, screwdrivers, etc., which have many uses and can readily be passed from hand to hand and from bench to bench. The tools themselves are usually placed under the control of a storekeeper and charged to the cost of manufacture when issued to the factory. They are not subject to depreciation and the shop tool account is handled in much the same way as a supply inventory account.

Furniture and Fixtures.—This account includes scales, shelving, tables, chairs, fire equipment and other factory furniture. It also includes desks, cabinets, calculating machines, typewriters, steel files and other office equipment. These items are generally not much of an asset in case of liquidation and conservative treatment is quite in order. It frequently happens that a concern is faced with the advisability of refurnishing its plant. The expense of so doing should not be augmented by a large write off on the furniture scrapped. There are four or five methods of treating charges to the furniture and fixture account. The Stein-Bloch Company believes that the best policy is to set up the original cost for all extensions under this classification, to apply a generous depreciation rate, and to be liberal in charging to expense the renewals. This account is also checked by an inventory from time to time.

Automobiles.—This asset is usually carried as a separate account because of the relatively high depreciation and the rapid replacements necessary.

Construction in Progress.—This account is set up for the purpose of assembling the cost of additions to plant. Not until an item is in condition to produce can it be correctly taken into an established fixed asset account. Part of the cost of new equipment is frequently charged to expense. It is impracticable to reflect this portion on the books until the item can be handled as a whole. In so far as the construction in progress account suspends such expense charges, it serves to defer them to the period in which benefits are received from the plant addition.

So much for the classification of fixed assets on the general ledger. In describing the various groups I have endeavored to show sufficient reason for breaking the total into at least these divisions. I have attempted to analyze the items of original new values which fall into each group.

Plant Additions

Every progressive concern is continually adding to and altering its plant. It is often difficult to decide which of these charges should be capitalized and which should be charged to expense. The unfair treatment of this problem permits the capitalizing of items in order to inflate the profits of a lean period; or of reducing income by charging to revenue items which should have been capitalized. That concerns have taken advantage of this possibility is not to be doubted. Because of the vagueness of the standards this can be done without any great danger of detection. Unless some rule is adopted the same results may occur unintentionally. Departmental costs will then be not only in error, but, after a period of years the value of the capital assets themselves will be considerably amiss.

The accounting requirement for a capital addition is that it must be one that can clearly be shown to have increased the earning capacity of the plant. Conversely if the expenditure is necessary to maintain the present earning capacity, the item should be charged to expense. Actually it is difficult to make a literal interpretation of this rule, for no addition to the plant is probably ever undertaken except for the purpose of directly or indirectly increasing earning capacity.

A written policy as to what to capitalize can be established with fair success by analyzing the questionable items into four classes and defining a policy on each. These classes are:

1—Additions
2—Replacements
3—Betterments
4—Repairs

The analysis will apply whether the expenditure be one for the buildings, building equipment, machinery, or tools.

Additions.—These include additional structures, facilities, or equipment not taking the place of anything previously existing. These should be capitalized.

Replacements.—These are those installations of plant and equipment which have for their purpose the substitution of one building or piece of equipment for another, but the substitution is not for the purpose of increasing the original capacity. In this case, the replaced equipment should be removed from the books entirely. This is accomplished by crediting the original cost of the old equipment to the fixed asset account in which it is carried; by charging the depreciation taken to date to the account, Reserve for Depreciation; and by charging the difference to expense, if small, and to surplus, if large. After the replaced equipment is off the books, the whole expenditure for the new equipment can be capitalized.

Betterments.—These are enlargements of the capacity of, or improvements to, existing structures or equipment. A sufficient portion should be capitalized to bring the old investment up to the replacement cost of the property as improved, but no further. If, for example, a building be enlarged by the addition of another story, a sufficient portion of the cost of the job should be capitalized to bring the building to the value of a like structure carrying an additional story. The balance of the expenditure should be charged to expense, or deferred to be charged to expense over a period of time. While this example is none too fortunate because of the probable amount involved, it will illustrate the procedure where a machine is rebuilt for greater capacity or any of the more common forms of betterment.

Repairs.—These constitute replacements of a part made necessary through wear and tear or casualty. It does not amount to a substantial change of the identity of the unit of plant and it does not change the original capacity. Repairs are to be charged to expense.

By dividing items subject to capitalization into these four divisions a definite and conservative policy can be set up where generally none clearly exists. With such rules as a guide all cases of doubt can be safely decided on the conservative side and charged to expense.

Control

Any proposed additions to the capital assets of a concern should be seriously considered and should be brought under rigid control. A conservative policy in this respect is of the first importance because an unsound policy results in a larger investment than should be required for a given volume. This is more serious than an over-investment in inventories or accounts receivable because these may be liquidated and the unfavorable position corrected. Capital invested in plant is, however, of the most lasting kind and it carries with it charges to operations in the way of depreciation, taxes, insurance, and repairs that run on year after year.

The time to obtain control over capital expenditures is before they are made. This may be accomplished by requiring that all proposed additions over $200 or $500 be submitted to the head of the concern, or even to the board of directors. This request should show the complete story somewhat as follows:

1—The purpose of the job
2—A full estimate of the cost
3—The loss on the properties retired
4—The annual addition to depreciation and insurance
5—The savings to be effected.

The figures should be final.

Where an authorized addition is not a simple purchase, an easy method of controlling its amount is to open up a subsidiary account in the Construction in Progress account in the general ledger. The heading can carry a notation of the appropriation. When the job is completed it should be journalized in summary form to the proper fixed asset or expense account, and the authority that passed on the original estimate should also approve the Journal entry to give him information as to how closely the original estimate was attained.

Depreciation

The purpose of setting up depreciation reserves is first of all to produce correct costs. It is to spread over the various periods the purchase price of the individual units of plant when they become no longer useful or economical to operate. From a point of view of costs, it is necessary to recognize that each article produced owes to the business an amount for the use of buildings and machines. If this has been correctly done a piece of equipment that has to be replaced can be written off without loss by crediting the fixed asset account with its original value, charging the Reserve for Depreciation with the depreciation set up over its life, and taking into operations the scrapped value.

Looking at depreciation purely from the viewpoint of the balance sheet its purpose is to recognize a decrease in the value of properties and to establish a normal going value. To illustrate: Assume a concern or department starting out with new equipment at a given cost. During the first few years, replacements are very small, yet depreciation has occurred, for the equipment cannot be said to be worth as much as when new. In order to reflect this decrease in value, the Reserve for Depreciation is established. After ten or fifteen years replacements are occurring at a more or less constant rate. Some of the property is of the original purchase, some is brand new, and there are all of the variations in between. The book value of the plant as a whole has, however, by that time been brought down on the balance sheet to from 60 per cent to 75 per cent of the original cost. This remains fairly constant and is the normal going value for credit and insurance purposes. As replacements occur, the reserve for depreciation account supplies the funds from which to pay for the plant scrapped.

The simplest, most easily applied, and most widely used method of *calculating* depreciation is the straight line method. This assumes that a given building or piece of equipment will have an average number of years of life. The cost, less any scrap value, is spread evenly over the estimated life. If a machine costs $1,200 and has an estimated residual value of $200, the depreciable cost would be $1,000. If a ten years life were assumed, the charge to depreciation would be $100 a year or 10 per cent of the depreciable value.

There are many factors in establishing the probable life and there are many other methods of calculating depreciation. Kester lists seventeen. The subject of depreciation is a much mooted question between the cost men, the accountants, and the appraisers —to say nothing of the Internal Revenue Department. A whole meeting could be devoted to the subject alone and at the end, conclusions would be a matter of individual opinion. It is important and it must be taken seriously. The executive has a wrong perspective who figures that refinements are unnecessary because depreciation represents but from 4 per cent to 6 per cent of net sales. *If depreciation is from 4 per cent to 6 per cent of sales, it is 50 per cent of profits.*

An inadequate provision results in an over-statement of plant values on the balance sheet and ultimately a large write-off to expense when equipment is replaced. From a cost point of view this places the burden on a period that did not receive the benefits of the use of the property. The result is also accumulative, for during the first few years, operations have not been charged with an equitable figure, and later years have to bear the losses on replacements and their normal charge for depreciation besides.

On the other hand an over-provision for depreciation loads costs unjustly, handicaps earning possibilities, and even though a satisfactory profit can be earned, it withholds part of the profit from surplus available for dividends. Excess depreciation biases a corporation's bargaining position in credit or new financing and makes difficult the collection of a fair figure in case of a fire loss. A conservative policy must be followed; an over-conservative policy is a handicap.

The method of calculating depreciation is a part of the policy for handling betterments, replacements, and repairs. If the calculation of depreciation is generous that for capital additions need not be so generous.

Revaluations

Revaluations of fixed assets are advisable from time to time for insurance purposes and to check up the values on the balance sheet. They, also, should not be overlooked in mergers where it is essential to place the properties of the various concerns involved on an equal basis. Revaluations are essential as an equitable basis for new financing.

Insurance policies are intended to cover the replacement costs of property damaged, less depreciation to date. The important point is, that insurance should yield an amount to replace equipment. The value on the books is cost value. For plant purchased at pre-war prices it will not show the amount necessary to replace at the present time, because present costs are higher than pre-war. If no revaluation has been made, the basis of settlement is pretty much in the hands of a critical adjuster paid by the insurance company. Because the owner carries insurance in excess of his book values, there is no assurance that he will collect any sum in excess of the loss that he can prove. It is money well spent to pay one or two thousand dollars every once in a while to make sure that a fire loss will not be discounted 10 per cent on a half million dollar risk. An appraisal is valuable as a guide to show how much insurance to carry.

In case a concern wishes to take advantage of the relatively low co-insurance rates an accurate replacement value is doubly necessary. Before adjustment is discussed on even a partial loss it becomes necessary to prove the replacement value of the whole property.

Where an appraisal shows an increased valuation of an asset it covers two factors: 1—an advancing building or equipment replacement cost, and 2—a reinstatement of values previously written off through a conservative policy in the handling of depreciation, additions, betterments, and replacements. An appraisal adjustment to reinstate values previously written off is not taking a book profit, as it is ordinarily known, but is a correction on the transaction of past periods. It is a restoration to surplus. In so far as an appreciation of a fixed asset covers increasing replacement costs it is a book profit based on rising inventory values. From a practical point of view, it is impossible to distinguish how much of each factor is involved in an appraisal.

The recognition of enhanced values is a simple matter from a bookkeeping point of view. Take the case of a concern which has on the books fixed assets of one million dollars and reserves for depreciation of $400,000. The net valuation is $600,000. Suppose an appraisal shows a cost to replace new of $1,250,000, a depreciation of $500,000 and a sound value therefore of $750,000. The increase in sound value is $150,000. A journal entry should be made charging the proper fixed asset accounts with a total of $250,000. This will bring the cost value up to the appraised $1,250,000. The reserves for depreciation should be credited with $100,000 to bring it to the $500,000 specified. An account called Capital Surplus should be created and credited with $150,000 to show the increase in net worth. The debits thus balance the credits.

While the bookkeeping is fairly simple in the case of appreciation, the policy of placing it on the books is very questionable. It immediately loads operations with an increased depreciation cost. In most concerns the doubling of depreciations would eliminate

the profit. There probably is not a cotton mill in New England which has re-valued its plant that today does not wish it were relieved of the additional operating charges. An attempt to avoid this load is the practice of charging depreciation to operations on the original cost and depreciation on appreciation to the capital surplus set up. However, if this is done real provision is not made from operations to retire the properties at replacement values, and the only advantage is that the books are supposed to reflect the worth of the property. Since 1913 replacement values have been continually changing, so that even this picture would be antiquated by the time it was used. It would have to carry the date of the appraisal and because of the addition of new equipment at current prices it would be hopelessly confused after a few years as to its basis of valuation.

Another disadvantage of placing an appraisal on the books is the temptation to use such unearned increments as the basis of cash dividends or stock dividends, or to mortgage the increase in sound value by the issue of bonds. Either procedure would result in increased interest burden—very uncomfortable in the present market, and impossible to tell how burdensome as the future develops.

Since 1905 the Stein-Bloch Company has had a revaluation made every ten years by a professional appraisal concern. The expense was thought of in the same light as additional insurance premiums. The figures were used, however, to temper the policy in regard to depreciation and capitalization of new items. Only one appraisal was actually placed on the books and that was in 1925 in connection with re-financing.

The best mechanism for the proper consideration of fixed asset problems is the plant ledger. The usual form is a card file with one card for each unit of land, building, equipment, or machinery. On the card is stated the name of the machine, the maker's number, the shop number, date acquired, the complete cost, estimated life, depreciation rate, residual value, location on the floor. The cards are arranged in accordance with the classification of fixed assets in the general ledger. As additions, replacements, or betterments are made, the transaction is recorded on the proper card to substantiate a corresponding entry on the ledger. A history of repairs may be kept on the back. A series of columns is provided for recording the amount of depreciation taken each period, the total taken to date, and the remaining sound value. Different bases for calculating depreciation can be used on different types of equipment.

The section of the plant ledger supporting the machinery and the tools, jigs, and fixtures accounts are usually departmentalized in accordance with the corresponding cost divisions. Depreciation can then be allocated to department or machine super-rate within departments by the simple expedient of running up the recorded depreciation for the period on each of the cards within the division. The procedure is mechanical, accurate, and quick. Depreciation costs on buildings or building equipment are usually charged to departments on the basis of floor space. These divisions of the plant register are, therefore, not departmentalized but a separate card is still provided for each unit of property.

Where appraisals have been made the ledger card provides for the date, the replacement value new, depreciation on replacement value, and the sound value as appraised. The sum of any one factor on the cards will support the total of the corresponding account on the general ledger. At inventory time, a check can be made by the maintenance department for the loss of equipment or for unentered additions of plant. The general ledger can then be adjusted for discrepancies.

A plant ledger is somewhat laborious to set up, but, once established requires very little effort to maintain. To me it is just as important as an individual accounts receivable ledger or a note register. I fail to see the logic of carrying the figures of fixed capital in bulk only, and that for working capital in detail. The necessity of carrying the latter individually is apparent. The failure to carry the former in detail is a handicap to the correct accounting for capital assets.

COST SECTION

Trade Marks Department

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Miss Rhea Culver To Leave Kalamazoo

KALAMAZOO, Mich., August 1, 1927.—Miss Rhea Culver, one of Kalamazoo's most successful young business women, who for years has conducted a paper mill supply agency from offices in the Peck building, is leaving Kalamazoo early in August to take up her residence in Seattle, Wash., where her mother and sister are living.

Miss Culver, it is believed, enjoys the distinction of operating the only paper mill supply agency in America, that is managed by a woman. Several years ago she accepted a stenographic position with the Frank D. Haskell agency. During Mr. Haskell's protracted and fatal illness, she ran the office so successfully that on the death of Mr. Haskell, the various concerns represented, induced her to continue the business under her own name. This has been done and she has developed a line of customers among the best mills in Michigan, being particularly strong in the Kalamazoo Valley district.

She has taken active interest in the social and club life of the city, being a member of the Business and Professional Women's Club, the Altrusa Club and the Hiker's Club.

Miss Culver says she is prompted to leave Kalamazoo only by a desire to be with her mother and sister. "If I leave at all, I feel I must leave Kalamazoo now," she remarked, "while still young enough to engage successfully in other lines of business activity."

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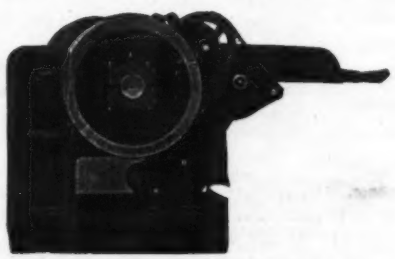

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Paper hangings .....10 bls., 27 cs.
News print .....715 rolls
Wall board .....30 cs.
Printing paper .....171 rolls, 55 cs.
Painted paper .....37 cs.
Wrapping paper .....26 cs.
Packing paper .....107 bls., 78 cs.
Drawing paper .....29 cs.
Filter paper .....20 bls., 15 cs.
Filter masse .....37 cs.
Kraft paper .....42 rolls
Tissue paper .....2 cs.
Surface coated paper .....75 cs.
Decalcomania paper .....29 cs.
Photo paper .....3 cs.
Paraffine paper .....2 cs.
Stencil paper .....67 cs.
Letter paper .....1 cs.
Writing paper .....13 cs.
Miscellaneous paper....2,752 rolls, 580 bls., 176 cs.

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Standard Products Corp., Suffren, Havre, 32 cs.
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P. J. Schweitzer, Pres. Monroe, Marseilles, 76 cs.
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(*Continued on page 70*)

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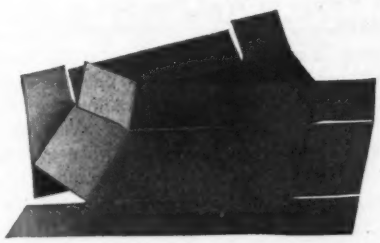
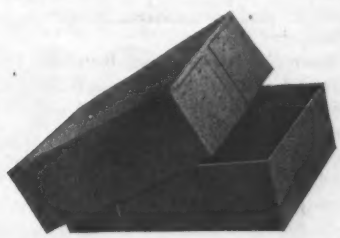


CARTONS can be ordered in the flat, die-cut and scored, ready for assembling, and STITCHING MACHINES INSTALLED TO ASSEMBLE CARTONS AS NEEDED. The cost of cartons *in the flat* is lower, the freight is less, and the storage space greatly reduced when handled in this manner.

One Operator Can Stitch Up to 1,000 Containers Per Day

2 Flat Blanks—
A Morrison "Perfection" Stitcher—
and You Have a Complete Telescope Container!

WRITE NEAREST OFFICE FOR DETAILED INFORMATION



THE J. L. MORRISON COMPANY, INC.

General Offices and Factory: NIAGARA FALLS, N. Y.

424 West 33rd Street—NEW YORK CITY
116 West Harrison Street—CHICAGO
445 King Street, West—TORONTO, CANADA

Imports of Paper and Paper Stock

(*Continued from page 68*)

PHILADELPHIA IMPORTS

WEEK ENDING JULY 30, 1927

E. J. Keller Co., Inc., London Commerce, London, 196 bls. paper stock.
A. Murphy & Co., London Commerce, London, 5 cs. writing paper.
Amsinck, Sonne & Co., Inc., London Commerce, London, 59 bls. rags.
Brown Bros. & Co., London Commerce, London, 86 bls. old rope.
Paper Service Co., London Commerce, London, 3 bls., 2 rolls paper.
Congoleum Nairn Co., Cherca, Naples, 217 bls. rags.
E. J. Keller Co., Inc., Cherca, Oran, 257 bls. rags.
Neidich Process Co., Korsholm, Helsingfors, 154 cs. tissue paper.
Castle & Overton, Inc., West Arrow, Rotterdam, 720 bls. wood pulp, 112 tons.
Castle & Overton, Inc., Saco, Antwerp, 420 bls. rags.
Castle & Overton, Inc., Justin, Germany, 54 bls. rags.
Castle & Overton, Inc., Waukegan, France, 84 bls. bagging.
Castle & Overton, Inc., Devonian, England, 64 bls. rags.
Castle & Overton, Inc., Sarcoxie, France, 750 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, ——, 598 bls. rags.
E. J. Keller Co., Inc., Iowan, ——, 75 bls. rags.
E. J. Keller Co., Inc., Devonian, Liverpool, 32 bls. rags.

BOSTON IMPORTS

WEEK ENDING JULY 30, 1927

American Express Co., Cedric, Liverpool, 255 coils rope.
American Rag Trading Co., Pres. Monroe, Marseilles, 57 bls. old rope.
Buck, Kiaer & Co., Inc., Korsholm, Stockholm, 1,200 bls. chemical pulp.
Johanson, Wales & Sparre, Inc., Korsholm, Sundsvall, 2,000 bls. sulphite.
Perkins, Goodwin & Co., Korsholm, Sundsvall, 450 bls. sulphite.
Scandinavian Pulp Agency, Inc., Korsholm, Sundsvall, 125 bls. sulphite.
Castle & Overton, Inc., West Arrow, Rotterdam, 240 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JULY 30, 1927

N. Y. Trust Co., Cold Harbor, Manchester, 59 bls. bagging.

CHARLESTON IMPORTS

WEEK ENDING JULY 30, 1927

E. J. Keller Co., Inc., Nebraskan, ——, 200 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING JULY 30, 1927

Castle & Overton, Inc., West Wanna, England, 100 bls. rags.

Specifications for Window Envelopes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1927.—Proposed specifications covering windows for window envelopes have just been released in technologic paper by the Bureau of Standards, Department of Commerce.

The paper explains that it is impossible to draft one specification covering one-piece and two-piece envelopes, because of differences in materials, construction and transparency of the windows.

In the case of one-piece envelopes the contrast ratio, which determines opacity, shall not be more than 0.25, and the test must be made on samples not less than five days old. Gloss shall be not more than 90 per cent. Bursting strength of window material must equal that of body of envelope, and the impregnating material must not spread excessively.

In the case of two-piece envelopes the contrast ratio shall be not more than 0.2, gloss not to exceed 80 per cent, bursting strength not less than 12 points, and the window must adhere firmly and uniformly to the body of the envelope.

Methods of sampling and testing are outlined, and the reasons for undertaking the investigation are set forth.

Since approximately 65 millions window envelopes are used annually by the Government and many millions additional by other agencies, their quality is a matter of considerable importance to postal officials and employees.

The use of envelope windows of poor transparency and high gloss results in severe eye-strain among the employees and loss of time in distributing the mails. The matter is of especial importance in the case of mail clerks employed in railway post offices as the nature of the work is exacting and the conditions for such work are, at best, far from ideal.

With the cooperation of manufacturers representative samples of practically all domestic window envelopes were secured and the windows were tested for opacity and gloss. The capacity was determined by means of an apparatus devised by the Bureau. This duplicates service conditions in that the window is placed over a standard black surface and a standard white surface (representing the printing and the white paper, respectively) and the comparative amount of light reflected through the window from the contrasting surfaces measured. The gloss of the windows was measured with the instrument commonly used in the paper industry for the purpose, the "glarimeter." Based on these and other test data secured, specifications defining windows considered satisfactory were formulated for both types. Judging from the high quality that is being attained by domestic manufacturers they will have no difficulty in meeting these requirements.

Employment in Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1927.—Employment in paper and pulp mills and payrolls in these mills decreased in June as compared with May according to the Bureau of Labor Statistics, Department of Labor.

The Bureau received reports from 194 paper and pulp mills which gave their May employment at 55,199, decreasing in June to 55,094, a decrease of 0.2 per cent. The payrolls in these mills also decreased from $1,470,428 in May to $1,445,867, a decrease of 1.7 per cent.

Replies were also received by the Bureau from 175 paper box plants which gave their May employment at 17,926, increasing in June to 17,937, an increase of 0.1 per cent. The payrolls in these plants, on the other hand, decreased from $398,798 in May to $393,169 in June, a decrease of 1.4 per cent.

See Return to Wall Papers

Wall paper again is coming into vogue in the interior treatment of homes, and according to a number of speakers at the National convention of Wall Paper Wholesalers' Association last week.

The president of the organization, Justin B. Allman, of Philadelphia, announced the return of wall paper as a natural and logical sequence because women love colors and when you starve them for a number of years a natural reaction results.

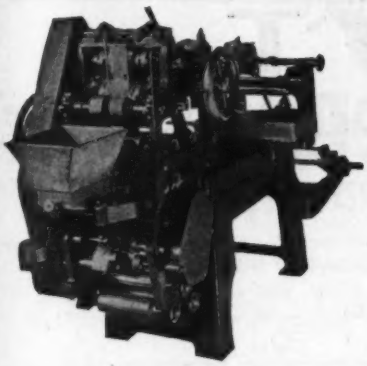
This expression was amplified by Richard E. Thibault, who predicted that the time was coming when neurologists will prescribe special designs for the homes of neurotic patients. The definite effects of color combinations when brought out through striking designs are well-known to psychologists. Color alone, he said, has not curative qualities, but color expressed in designs has.

International Forms Newfoundland Subsidiary

ST. JOHNS, N. F., August 1, 1927.—The International Paper Company of Newfoundland, Ltd., was incorporated here today with a capital of $25,000,000. Details of the organization were not made public.

* * *

A. R. Graustein, president of the International Paper Company, according to the *New York Sun*, declared that the International Paper Company of Newfoundland, Ltd., has been formed to take over the Corner Brook Paper Mills when the negotiations incident to the acquisition is completed, and will be a subsidiary of the International of New York. No offering of securities of the new organization is contemplated for the near future, he said.



HIGHEST SPEED
Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH,
1702 Robinson St., South Bend, Ind.

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

TRADE U MARK

You are invited to ask for the facts concerning our ability to meet your requirements in dyestuffs.
Every customer entered on our books has been sold, *firstly*, on Heller & Merz quality; and, *secondly*, on the excellence of Heller & Merz service.

The HELLER & MERZ COMPANY
505 Hudson St., New York

Boston 287 Atlantic Ave. | Chicago 146 W. Kinzie St. | Philadelphia 114 Market St.

Springfield, Mass. 24 Lester Street

Factory—NEWARK, N. J.

When Minutes are Money
~ once is enough to join a Belt

It Pays to STANDARDIZE!

"—since becoming familiar with Crescents I have never used any other form of fastener."

"—We have used your fasteners throughout the plant — entirely satisfactory on all our drives."

"We have discarded everything in favor of Crescents."

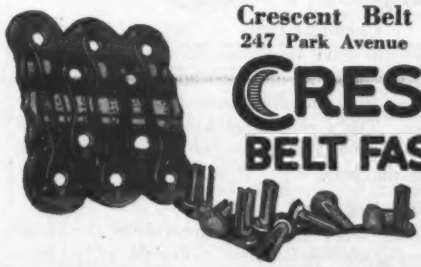
"—found them satisfactory and have standardized the use of Crescent Belt Fasteners on all of our belts."

"During the last six years we have used Crescent Belt Fasteners exclusively."

"—such satisfactory service that we now use them exclusively."

Write for Catalog

Crescent Belt Fastener Co.
247 Park Avenue New York, N. Y.



CRESCENT BELT FASTENERS

Recommended by Belting Manufacturers

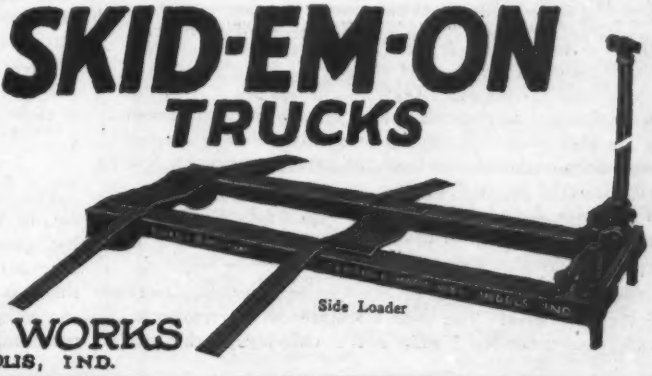
Boughtone on trial -has since bought four

The Terre Haute Paper Co. purchased one of these trucks some time ago on trial and were so well pleased with the results that they have since purchased a supply for each of their four plants, and figure that they have saved a great amount of time and cost in handling paper stock.

They save their cost in damage to rolls. They insure perfect handling of stock and are saving money in many paper plants throughout the country. Many report a saving of over 25%.

Our thirty day free trial offer will convince you that you need them.

SKID-EM-ON TRUCKS



Side Loader

CENTRAL MACHINE WORKS
437 S. SENATE AVE., INDIANAPOLIS, IND.

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 3, 1927.

While trading in the local chemical market was mostly along routine lines during the past week, the amount of business transacted was quite satisfactory for the season, and a cheerful sentiment prevails throughout the industry. Sales forces of the leading paper organizations are beginning to prepare for the autumn campaign and are confidently looking forward to a general expansion of business in the near future.

The demand for news print is being well maintained, and, despite the heavy production, the output is being absorbed freely. However, spot offerings are more plentiful, and consumers are having no difficulty in filling their immediate requirements. Prices are generally holding up to schedule, and there is, apparently, little prospect of concessions for some time.

Steadiness continues to prevail in the paper board market. Box board is in good request and prices continue firm. A moderate amount of business was transacted in the fine paper market during the week, and prices in this section are holding up very well. Tissues have been in good request of late. The coarse paper market is in an excellent position, and the demand for summer specialties is unabated.

Mechanical Pulp

Conditions in the ground wood market are practically unchanged. Shipments against contract continue to move in a normal manner. Spot supplies are being offered in generous volume, and, as the demand for mechanical pulp is rather light at present, prices are somewhat weaker. An encouraging sign, however, is the fact that inquiries for future business are numerous.

Chemical Pulp

No further developments have transpired in the chemical pulp market. The demand for both the imported and domestic grades is normal for the season, and quotations are unaltered from previously reported levels. The spot market has been rather quiet of late, but more liveliness is anticipated by many observers in the closing months of the year.

Old Rope and Bagging

Manila rope is reported to be in better request from the paper mills, and prices are being well maintained. Offerings of old rope are, apparently, sufficient to take care of current requirements. A better feeling is generally developing in the bagging market, and, with an improved demand, prices are generally holding up to recently quoted levels.

Rags

Both foreign and domestic rags were only in moderate demand during the past week. No radical price changes were recorded, however. Supplies in the hands of the paper manufacturers are generally believed to be low, and an expansion of trading is looked for with the advent of the autumn, when the mills will probably require to replenish their stocks.

Waste Paper

Improved conditions were experienced in the paper stock market during the past week. The special feature of the trading was the steady request for No. 1 white news. Offerings of this grade are becoming scarce and the price has advanced to from 1.60 to 1.65. Other grades are also in a stronger position, notably strictly overissue news, ledgers and writings, shavings, and old kraft machine compressed bales.

Twine

The twine market continues to exhibit a sound undertone. While business is quiet at present, mainly due to the usual midsummer lull, a general revival of activities is confidently anticipated after the close of the holiday period. Twine quotations are holding up to previously reported levels, and reports of shading are infrequent.

Paper Mill Files Petition in Bankruptcy

[FROM OUR REGULAR CORRESPONDENT]

DENVER, Col., August 3, 1927.—The Colorado Pulp and Paper Company, formerly the Myers Pulp and Paper Company, Denver, filed a voluntary petition in bankruptcy in the United States district court, Denver, July 25.

When the Myers concern was adjudged bankrupt the mill was sold at auction the principal buyers being Joseph Buchhalter and Charles B. Myers. For sometime there has been strife, accusations, etc., and on May 17, Judge Samuel W. Johnson in the District court appointed George W. Beck receiver. At the time the receiver was appointed it was stated that the mill was being operated at a loss of about $3,000 per annum.

Attorneys Cass E. Herrington and Henry E. Lutz for the company say that it is willing to turn over all its property for its creditors, except that which is exempt under the law.

When former officers of the Colorado Pulp and Paper Company filed a petition of voluntary bankruptcy, Charles B. Myers, one of the largest stockholders, and Roy S. Dexter, president and secretary of the company, asked Judge J. Foster Symes in the Federal district court for permission to contest any such action, and permission was granted. However, Joseph Buchhalter, A. H. Dougall, Jr., and Henry A. Bronstein, former officers, maintain that they were empowered by the board of directors to take such action, before they left office. With all of this contention existing, creditors have filed a petition asking that the concern be declared bankrupt and this Myers and Dexter will also oppose.

Water Controlling Apparatus

Rodney Hunt Machine Company, of Orange, Mass., has just issued a very attractive and complete catalogue which gives fullest information relative to "Water Controlling Apparatus" manufactured by it. The catalogue is profusely illustrated, showing many colored plates and gives detailed descriptive information pertaining to each of the company's products, as well as specification tables.

New Bristol Catalog Issued

The Bristol Company, manufacturers of recording instruments, etc., of Waterbury, Conn., have just issued a new electrical catalog, ammeter section. Reproductions of charts are shown which illustrate several ways available for recording ammeters and shunt ammeters. The various systems are explained further in connection with the individual movements and models of instruments manufactured by the Bristol Company.

Long Distance Phones
Harrison 2840-41-5557

MENDELSON BROS.
Paper Stock Co.

Paper Manufacturers' Supplies

910 So. Michigan Ave. Chicago, Ill.

Fourdrinier Wires, all widths up to 300 inches.

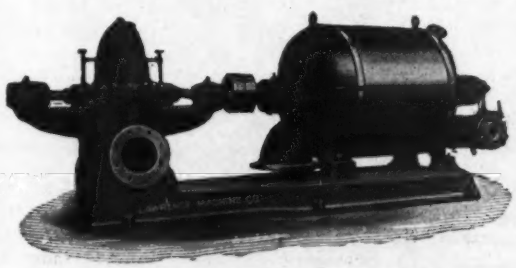
DIMOND WIRES

NEUMEYER & DIMOND
Established 1904
82-92 Beaver St. New York

Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.
We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

Lawrence Machine Company
361 Market St. Lawrence, Mass.

West Virginia Pulp and Paper Company

Manufacturers of
SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

200 Fifth Avenue New York
732 Sherman Street Chicago
503 Market St., San Francisco, Cal.
122 East 7th St., Los Angeles, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

Bristol's Recording Instruments

For Pressure, Vacuum, Temperature, Liquid Level, Humidity, Speed, Electric Units, etc.

The Bristol Company Waterbury, Connecticut

BRISTOL'S RECORDING INSTRUMENTS

WALDRON MACHINES
FOR
EMBOSSING, COATING, PRINTING
Machines for Processing Paper Calenders, Winders & Slitters, Francke Flexible Couplings
JOHN WALDRON CORPORATION
NEW BRUNSWICK, N. J.
CHICAGO NEW YORK BOSTON

Pulp Type AMERICAN CONTINUOUS FILTERS
Used as
Groundwood Deckers or Thickeners Sulphite Deckers or Thickeners White Water Save Alls. Combined Sulphite Deckers and Save Alls Combined Bleach Washers, Deckers and Save Alls.

UNITED FILTERS CORPORATION
Hazleton, Pa.

Our Worm Gear Speed Reducers represent the most advanced engineering and the highest type of precision manufacture. Used in many basic industries. Write for Bulletin 251—of interest to you.

THE HORSBURGH & SCOTT CO.
"Gear makers since '89"
5112 Hamilton Ave. Cleveland, U. S. A.

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 3, 1927.

Conditions in the local chemical market are very satisfactory for the time of the year. Contract withdrawals continue to move in heavy volume. Prices of most of the chemicals used in the paper mills are holding up to schedule. Inquiries for future business are numerous and the outlook for the near future is bright.

BLANC FIXE.—The tone of the blanc fixe market is steady and both the pulp and the powder are in good request. Prices remain unchanged, and reports or shading are infrequent. The pulp is still selling at $60 per ton, in bulk, while the powder is quoted at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market was fairly active during the week. Shipments against contract have been moving at an excellent pace. Prices remain unaltered from the level which has prevailed for some time. Bleaching powder is quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CASEIN.—Due to light demand, together with generous offerings of stocks, domestic casein is somewhat easier. Imported casein was only in moderate request during the week. Domestic casein is now selling at from 17 cents to 18½ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is holding up well and the market is exhibiting a sound tendency. Shipments of this product are going forward in excellent volume. Prices rule steady to firm. Caustic soda is offered at from $3 to $3.10 per 100 pounds, in large drums, at works. Spot car lots are quoted at from $3.20 to $3.25 per 100 pounds.

CHINA CLAY—Steadiness prevails in the china clay market. Both domestic and imported paper makers' clay are in steady request for the season of the year. Prices remain unchanged. Imported china clay is quoted at from $15 to $25 a ton, ship side. Domestic paper makers' clay is selling at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—The chlorine market is in a strong position. Production of liquid chlorine is proceeding along heavy lines, but the demand is readily absorbing the output, and no surplus stocks are accumulating. Chlorine is quoted at 4 cents a pound, in tanks, or multi-unit cars at works on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound.

ROSIN.—During the past week the rosin market remained unchanged, and prices at present are steadier than for some considerable time. At the naval stores, the grades of gum rosin used in the paper mills are still selling at around $10.35 per 280 pounds in barrels, ship side. Wood rosin is offered at $9.50 per 280 pounds, southern shipping points.

SALT CAKE.—With shipments of salt cake going forward in generous quantities, the tendency of the market is firm. Surplus stocks of this product are reported to be limited, and consumers are said to be having some difficulty in filling their immediate requirements. Salt cake is quoted at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is selling at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Substantial shipments of soda ash continue to move into consumption. The movement during the past month was heavier than in the corresponding period of the preceding year, and shows no signs of slackening. Prices remain unaltered. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.20; in bags, $1.32½, and in barrels, $1.57½.

STARCH.—Consumption of paper makers' starch is being maintained in satisfactory volume. Contract withdrawals are going forward at a regular pace. Prices rule steady to firm. Special paper makers' starch is still quoted at $3.07 per 100 pounds, in bags, and at $3.24 per 100 pounds, in barrels.

SULPHATE ALUMINA.—Manufacturers of sulphate of alumina are experiencing an active demand, and contract withdrawals are going forward at a steady pace. Prices are holding up to previously quoted levels. Commercial grades of sulphate of alumina are selling at from $1.40 to $1.45 per 100 pounds. The iron free is offered at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Most of the business transacted in the sulphur market during the past week was along routine lines. The demand for this product is about normal for the time of the year and may be expected to expand after Labor Day. Quotations remain unchanged. Sulphur is still selling at from $18 to $19 a ton, in bulk, at mine. The spot quotation is $20 per ton.

TALC.—Demand for talc is seasonal and the former level of prices is being maintained, in most instances. Although stocks are not excessive, accumulations are sufficient to take care of current needs. Quotations on domestic talc range from $16 to $18 a ton, at eastern mines. French talc is still selling at from $18 to $22 a ton, ship side.

PHILADELPHIA DEMAND LAGS

(*Continued from page 26*)

Andrews Company, is planning the development of the paper distribution and the organization of the company on a co-operative basis. The sales organization is to be augmented with the addition of other lines of mill products, within the course of the summer months.

James Nelson To Represent United Paper Board

Following the association of former manager W. W. Lightfoot with the Federal Container Company after many years of affiliation with the United Paper Board Company, his duties as manager of the United Company have been assigned to James Nelson, formerly connected with the New York office of the paper board manufacturing corporation. He will continue to occupy the Philadelphia offices in the Bourse.

A New Jersey Visitor

The complete line of the Warren Manufacturing Company, of Reigelsville, N. J., was recently shown for the fall stocking of the Philadelphia trade when G. Bucher, representing the manufacturers, made the rounds of the local dealers. The line included high grade rope and jute papers for all purposes, wallet and record papers, high grade tag stock, pattern papers and other specialties, in durable and strong grades of papers. The mills also are manufacturing a line of glassines for general purposes.

New England Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 1, 1927.—Charles A. Esty, who was taken ill at the Strathmore meeting, June 13, is now back at his office again in Worcester. He was confined to bed for a few weeks but later went to the Maine woods, and is now practically recovered.

Charles H. Barr, of the Barr Associates, Holyoke, Mass., and W. R. Ingersoll, representing Dill & Collins Company, Philadelphia, were in Boston last week.

The Fitchburg Paper Company, Fitchburg, Mass., reopened today, having been closed two weeks for repairs and vacations.

Ex-Governor Rolland H. Spaulding, of the Spaulding Fibre Company, North Rochester, New Hampshire, according to a member of the trade here, is gambolling with the grizzly bears in Yellowstone Park.

Spencer-Wynne Paper Co. To Build

NEWBURGH, N. Y., August 1, 1927.—The Spencer-Wynne Paper Company has placed a contract for a new building, 120 x 340 feet, one story in height, with structural steel frame, concrete floor and foundations, walls of brick and steel sash, wood roof.

Heating, lighting, plumbing and sprinklers are included in the general contract, together with heating plant and brick stack.

Plans, specifications and general contract are by the H. K. Ferguson Company, engineers and builders, 4900 Euclid avenue, Cleveland, Ohio.

The estimated cost is $100,000. The contract was let July 21 and is to be completed in fifty-five working days.

Clay

300 tons daily

AMERICAN MADE FOR AMERICAN TRADE

Over forty-one years' experience in the clay industry has naturally resulted in the adoption of the most scientific methods and practices. This record of achievement is your guarantee of Clay of absolute uniformity at prices consistent with M. E. quality and service.

Prices of M-E pulverized clay may surprise you even considering this additional treatment.

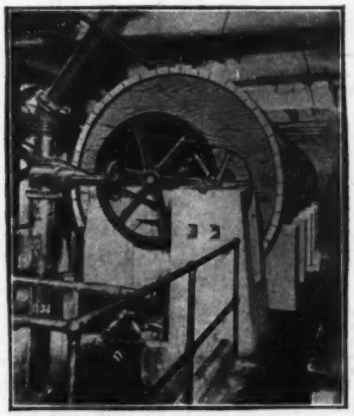
Let us submit sample and quote you.

THE

MINER-EDGAR CO.

110 William St.,
NEW YORK

PAPER MILL TANKS



Stuff chests, acid storage tanks, blow pits, vomit stacks, beater tubs, alum tanks, rubber-lined muriatic acid storage tanks, etc., have been built by Hauser-Stander for more than fifty years. This experience is reflected in our tanks.

The Hauser-Stander Tank Co.
Cincinnati, Ohio

RHOADS TANNATE LEATHER BELTING

RESULTS IT GAVE

LAST year a large paper mill in Ohio made marked changes in the power and transmission installation in their Beater Room. Eight kinds of belting were given tryouts in this new installation.

On a beater, with a dry fibre capacity of 1700 lbs. they have an 18-inch double Rhoads Tannate Leather Belt. It has been running over seven months with no take-ups or repairs. The report says, "It is the only one that has not given any trouble."

Another interesting point: The automatic shut-offs on the Beater drives are set at a 75 H. P. load, except the Tannate driven one, which is now set at 90 H. P. showing their confidence in Tannate. They claim this Beater shows 2% increase in production.

Tannate Belting often proves its ability to save trouble and increase production.

J. E. RHOADS & SONS

PHILADELPHIA .....37 North Sixth Street
NEW YORK .....104 Beekman Street
CHICAGO .....324 West Randolph Street
ATLANTA .....70 Forsyth St., S. W.
CLEVELAND .....1224 W. Ninth Street

Factory and Tannery: Wilmington, Del.

Despite the quality built into all Butterworth Long Wear Calender Rolls, they are NOT high priced.

Glad to send descriptive folder and quote prices—for super, coated and glassine.

H. W. BUTTERWORTH & SONS CO.

Phila., Pa.

Plants at Phila. & Bethayres
Providence, R. I. - - - Charlotte, N. C.
In Canada - - - W. J. Westaway & Sons Co.

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	79	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	94	98
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	102	104
Escanaba Paper Serial, 6s 1926-39	94	96
Fiber Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	95	100*
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.), 7s 1937	104	106
Gilbert Paper Co., 6½s 1926-29	89	...
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	94	96*
Itaska Paper 1st, 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	103½	105
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	103	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Poland Paper, 7s 1930	98	...
Port Alfred Pulp, 6½s 1943	*96	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	95½	98*
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	95	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	Wanted	...
Whitaker Paper, 7s 1942	106	108
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper, 8% Pfd.	97	100*
Am. Tissue Mills, 7% Pfd.	95	100
British Columbia P. & P., Pfd.	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	99	103*
Diem & Wing, 7% Cum. Pfd.	87	...
Donnaconna Paper, Com.	58	...
Donnaconna Paper, Pfd.	95	100
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper (new)	62	65
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	80	85
Midwest Box Co., Pfd. 6%	55	65
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	170	—
Oxford Paper Co., Pfd.	175	—
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company	85½	87½
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	100½	102½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	58	63
West Virginia Pulp and Paper, Pfd.	97	102
Whittaker Paper, 7% Cum. Pfd.	97	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.75	@ 5.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	47.50	@50.00
Straw	53.50	@57.50
Chip	45.00	@50.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip.	57.50	@60.00
Wood Pulp	80.00	@85.00
Container	65.00	@70.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	27.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.50	@ 4.50
Easy Bleaching	2.85	@ 3.10
No. 1 strong unbleached	2.50	@ 2.75
Mitscherlich unbleached	2.65	@ 3.40
No. 2 strong unbleached	2.40	@ 2.55
No. 1 Kraft	2.70	@ 2.90
No. 2 Kraft	2.50	@ 2.60
Sulphate—		
Bleached	3.75	@ 4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.85	@ 3.05
News Sulphite	2.50	@ 2.70
Mitscherlich	3.25	@ 3.70
Kraft (Domestic)	2.70	@ 3.40
Soda Bleached	3.50	@ 3.75
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

Prices to Mill f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	11.50	@12.00
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	7.00	@ 7.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.50	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.00	@ 5.50
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.75	@ 6.50
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.60	@ 1.70
No. 1	1.60	@ 1.70
No. 2	1.35	@ 1.45
No. 3	1.25	@ 1.35
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.75	@ 8.50
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.00	@ 7.75
No. 2 White Linens	5.25	@ 6.00
No. 3 White Linens	4.00	@ 4.50
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med Light Prints	1.85	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.75	@ 1.80
Dark Cottons	1.50	@ 1.60
Shoppery	1.50	@ 1.60
French Blues	2.25	@ 2.50

Old Rope and Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—		
Foreign	1.75	@ 1.85
Domestic	1.80	@ 1.90
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.50	@ 1.65
Manila Rope—		
Foreign	3.25	@ 3.75
Domestic	4.25	@ 4.75
New Burlap Cut	3.00	@ 3.25
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.35
Hard, White, No. 2	2.75	@ 2.90
Soft, White, No. 1	2.75	@ 2.90
Flat Stock—		
Stitchless	1.25	@ 1.35
Overissue Mag.	1.25	@ 1.35
Solid Flat Book	1.15	@ 1.25
Crumpled No. 1	.80	@ .90
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.45	@ .55
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.65	@ .75
Container Board	.50	@ .55
Bogus Wrapper	.70	@ .80
Old Kraft Machine		
Compressed bales	1.90	@ 2.00
News—		
No. 1 White News	160	@ 1.65
Strictly Overissue	.60	@ .70
Strictly Folded	.47½	@ .52½
No. 1 Mixed Paper	.37½	@ .42
Common Paper	.25	@ .30

The symbol that says "O.K."

The Jenkins "Diamond" mark is a safe guide for any engineer to follow in selecting a valve for long term service. It is a sign that says "O. K. to install."

Jenkins care in manufacture starts with the selection of the metal itself. Competent metallurgists are on the job to see that metals are analyzed before and after casting.

Design and construction provide for uniform distribution of metal throughout each valve—for strength where strength is needed. And to make sure the finished valve is ready for action, each valve must pass a wide margin safety test before it leaves the Jenkins factory. There is a genuine Jenkins for every valve requirement. At supply houses everywhere.

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80 White Street .....New York, N. Y.
524 Atlantic Avenue .....Boston, Mass.
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Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

For Greater Economy
Without Sacrificing Quality

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ALPHA
FIBRE

Our new product—
which takes the place of
rags in paper-making

Inquiries from the trade are welcomed

BROWN COMPANY
founded 1852
PORTLAND, MAINE

Sulphur

A FIRST REQUISITE

IN

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
41 E. 42nd Street New York City
Mine Gulf, Matagorda County, Texas

WE WILL BUY

Advance Bag & Paper Co. 7s, 1943	@105
Champion Coated Paper Co. 6s	@100½
Central Paper Co. 7s, 1933	@ 85
Donnacona Paper Co. 6s, 1940	@101
Escanaba Paper Co. 6s, 1935	@ 94½
Filer Fibre Company 6s	@ 95
Michigan Tanning & Extract 6½s, 1939	@ 69
Oxford Paper Co. 6s, 1947	@104
St. Croix Paper Co. 5s, 1927	@ 99½
Stevens & Thompson Paper Co. 6s, 1924	@ 94
Ticonderoga Pulp & Paper Co. 6s, 1940	@ 99
Tait Paper & Color Industries 6s, 1934	@ 90
West Virginia Pulp & Paper Co. 6s, 1942	@ 94

WE WILL SELL

Atlas Plywood Co. 6½s, 1940	@ 99
Eastern Manufacturing Co. 7s, 1938	@ 91
Eastern Manufacturing Co. 1st Pfd.	@ 28
Great Northern Paper Co.	@ 64
Quebec Pulp & Paper Co. Pfd.	@ 33
St. Regis Paper Co. 6s, 1931	@100½

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper Pulp Lumber Securities

Twines
F. o. b. Mill

Cotton—			
No. 1	.28	@	.29
No. 2	.26	@	.27
No. 3	.24	@	.25
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07½
No. 2 M. F. Book	.05½	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory—			
Plain Chip	45.00	@	47.50
Solid News	47.50	@	—
Manila Line Chip	55.00	@	57.50
Container Lined—			
(Delivered Central Territory)—			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

Old Papers
F. o. b. Chicago

Shavings—			
No. 1 Hard White	2.70	@	2.80
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.30	@	2.40
No. 1 Mixed	1.35	@	1.45
No. 2 Mixed	1.05	@	1.10
Ledger & Writings	1.45	@	1.60
Solid Books	1.20	@	1.30
Blanks	1.30	@	1.40
Krafts	1.80	@	1.90
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.80	@	.90
Folded News (overissue)	.35	@	.40
Old Newspapers—			
No. 1	.55	@	.60
No. 2	.50	@	.55
Mixed Papers—			
No. 1	.35	@	.40
Roofing Stocks—			
F. o. b. Chicago, net cash			
No. 1	30.00	@	—
No. 2	28.00	@	—

BOSTON

Paper
F. o. b. Mill

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08¼
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05¾	@	.06½
No. 2 Kraft	.04¾	@	.05¼
Common Bogus	.02	@	.02½
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s			53.50
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	75.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mills)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
F. o. b. Boston

Shavings—			
No. 1 Hard White	3.15	@	3.30
White Blank News	1.40	@	1.50
Manila Env. Cuttings	2.00	@	2.25
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.85	@	3.00
No. 1 Soft White	2.75	@	3.00
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.00	@	2.25
No. 1 Books, Heavy	1.17½	@	1.30
No. 1 Books, Light	—	@	1.15
Old Kraft	1.75	@	1.90
No. 1 Old Manila	1.40	@	1.60
No. 1 Mixed Paper	.45	@	.50
Print Manila	.70	@	.80
Overissue News	.55	@	.60
Old Newspapers	.45	@	.50
Box Board, Chip	.45	@	.60

Bagging
Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.60
Manila Rope—			
Foreign	3.50	@	3.75
Domestic	4.00	@	4.37½
Mixed Rope	1.05	@	1.15
Scrap burlaps	1.35	@	—
Wool Tares, heavy	1.40	@	1.60
Mixed Strings	.90	@	1.05
New Burlap Cutting	2.15	@	2.35

Domestic Rags (New)
Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.11¾	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.10	@	.10½
Fancy	.05½	@	.06
Washable	.04½	@	—
Cottons—According to Grades—Blue—			
Blue Overalls	—	@	.07
New Black, soft	.04	@	.04¼
Khaki Cuttings	.05	@	.05½
Corduroy	.03	@	.03½
New Canvas	.09	@	.10

Domestic Rags (Old)
Price f. o. b. Boston

White No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.12½	@	2.37½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.38	@	1.48
No. 3	.96	@	—
No. 4	1.10	@	—

PHILADELPHIA

Paper
F. o. b. Mill

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¾
No. 1 Kraft	.06	@	.06¾
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	45.00	@	50.00
Chip Board	40.00	@	42.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	58.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)
Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft)	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	.03½	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¼
New Canvas	.08	@	.09
New Black Mixed	.05	@	.05½

Bagging
F. o. b. Phila

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	4.25	@	4.50
Sisal Rope	1.25	@	2.00
Mixed Rope	1.25	@	1.50
Scrap Burlaps	1.75	@	2.00
Wool Tares, heavy	2.00	@	2.25
Mixed Strings	1.50	@	1.75
No. 1, New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.25	@	2.50

Old Papers
F. o. b. Phila.

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.15	@	1.20
No. 2 Books, light	.80	@	.85
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.75	@	.80
Old Kraft	2.00	@	2.20
Common Paper	.40	@	.50
No. 1 Mixed Paper	.50	@	.60
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.75	@	.80
Old Newspaper	.50	@	.60

Domestic Rags (Old)

White, No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	4.75	@	5.00
White, No. 2—			
Repacked	.03½	@	.04
Miscellaneous	.02	@	.03½
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.62½	@	—
No. 2	1.37½	@	—
No. 3	1.25	@	1.35
No. 4	1.20	@	1.30
No. 5A	.90	@	1.00
B	.80	@	.90
C.	.80	@	.90

TORONTO

Paper
F. o. b. Mill

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (Carloads)	3.25	@	—
Sheet (carload)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carLoads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rap	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp
(F. o. b. Mill)

Ground wood	28.00	@	30.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	78.00	@	80.00
Sulphate	65.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.20	@	—
Soft White Book Shavings	3.00	@	—
White Blk, News	1.40	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.52½
No. 1 Mixed Paper	.37½	@	.42

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.06	@	.06½

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Broad Street Bank Building, Trenton, N. J. — 341 Madison Ave., New York
SPECIAL FIBRE PRODUCTS AND PROCESSES
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Oiled Stencil Board
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IN A VARIETY OF GRADES AND COLORS
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PAPER: Microscopical, physical and chemical tests. Complete laboratories. Constant standard conditions.
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GENERAL CHEMICAL COMPANY 40 RECTOR STREET, NEW YORK

Dayton High Speed Beaters
—Advantages—
Heavier Furnishes
Faster Beating
Greater Output
More Uniform Product
Saving in Power
Saving in Labor
Eastern Representatives:
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PAPER TESTS
In Accordance with T. A. P. P. I.
Standard Methods
Oils — Paper — Water — Microphotograph
Electrical, Mechanical, Physical, Chemical and Photometric Tests
ELECTRICAL TESTING LABORATORIES
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Salomon Bros. & Co.
IMPORTERS OF
All Grades of Rag and Paper Stock
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COTTON WASTE :: LINTERS :: RAMIE

Don't Guess at Important Matters
BOWSHER'S SPEED or MOTION
INDICATOR is indispensable
in obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diameter. Weight, 10 lbs.
The N. P. BOWSHER CO., South Bend, Ind.

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are good wires
APPLETON WIRE WORKS INC., APPLETON, WIS.

"Your paper is made Dilts in your Beaters"
See page 33 last week's issue
NEW TYPE Fast Circulating Beating Engines
Dilts
MACHINE WORKS, Inc. FULTON, N.Y.
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Paper and Woolen Mfrs.' Supplies
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Centrifugal and Triplex Pumps
For All Purposes
Designing Pumps to Fit All Conditions Our Specialty

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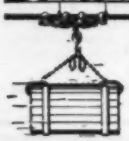
Include a complete line of case, roll and bale handling appliances
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Blow Pits, Acid Storage Tanks, Vats, Etc.
Send us your specifications for prompt shipment
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INTERNATIONAL WIRE WORKS
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Perforated Metal Screens
for every purpose
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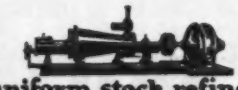
A more uniform stock refinement with less power consumption per ton of stock prepared is possible with the BALL BEARING TYPE APPLETON JORDAN
WRITE TODAY FOR BOOKLET - 5 POINTS OF IMPROVED JORDAN PERFORMANCE
THE APPLETON MACHINE COMPANY - APPLETON, WIS.

The CLEARING HOUSE of The Paper Industry

PAPER TRADE JOURNAL
10 East 39th Street New York, N. Y.
Telephone Caledonia 0560

"SITUATION WANTED" ADVERTISEMENTS.—4c a word, double rates for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

"HELP WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00.

CLASSIFIED ADVERTISEMENTS—4c a word, double rate for heavy face type. Minimum charge $1.00.
All classified, "Help Wanted" and "Situation Wanted" advertisements are payable in advance.

HELP WANTED

AN EXCEPTIONAL OPPORTUNITY for the right man. Must have knowledge of paper and paper boards, to take charge of mill department and correspondence. State age, past experience and other details. Address, Box 27-436, care Paper Trade Journal. A-25

PAPER TRADE readers find our Service effective in making connections. Individual. Confidential. Personally planned by Jacob Penn, known by all mill owners. Not agency. Jacob Penn, Incorporated, 9 Park Place, New York. tf.

WANTED—Man for part time, light work, operating experimental sizing machine in New York City. Position should appeal to retired papermaker. Address, Box 27-438, care Paper Trade Journal. A-4

PULP MILL MANAGER WITH CAPITAL—By small group of men in community ideally located for manufacture of sulphate or sulphite pulp. Pacific Northwest location. No stock selling. Reply stating experience, references, salary expected, and capital available for initial construction of 50-ton mill with rail and water transportation. Address, Box 27-439, care Paper Trade Journal. A-11

WANTED—Experienced machine tender for container board mill; mill working two tours; wages 80c per hour. In answering state age and experience; references required. Address, Box 27,428, care Paper Trade Journal. A-11

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established sixteen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

WE REQUIRE Superintendent and two Assistant Superintendents for present and new mills. Must have experience in groundwood pulp and good mechanical knowledge. Address, Box 27-414, care Paper Trade Journal. A-4

BACK TENDER for high speed Cylinder paper machine. Apply Robert Gair Company, Piermont, New York. Attention: Mr. Harry F. Cassidy. A-4

WANTED—Machine Tender and Beater Room Boss for two machine board mill in northern Wisconsin. Previous experience and A No. 1 reference required. Address, Box 27-415, care Paper Trade Journal. A-4

NIGHT SUPERINTENDENT for large wax paper plant, Middle West. Must be especially well acquainted with all details manufacturing bread wrappers. Permanent well-paying position. Strictly confidential. Address, Box 27-444, care Paper Trade Journal. A-11

HELP WANTED

GET THE JOB you want through National Service, 10 Murray Street, New York. tf.

SITUATIONS WANTED

YOUR BOSS wishes position. Experienced on most all kinds of paper, also glassine and greaseproof. Address, Box 27-433, care Paper Trade Journal. A-11

WANTED POSITION—Boss Beaterman or Beater Engineer. Family man, 37 years old. Experienced on most all grades. Good on colors. Address, Box 27-419, care Paper Trade Journal. A-4

ASSISTANT SUPERINTENDENT—College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

SUPERINTENDENT—Small board or wrapping mill. Experienced, reliable, competent to get tonnage and quality. Wages secondary consideration. Married. Reference. Address, Box 27-434, care Paper Trade Journal. A-4

POSITION as machine tender or tour boss. Thoroughly experienced on all grades boards, bag and wrapping. References. Married. Address, Box 27-431, care Paper Trade Journal. A-4

POSITION WANTED—Superintendent or foreman; chip board or wrapper mill. Experienced at construction and remodeling. Eastern states preferred. Address, Box 27-382, care Paper Trade Journal. A-4

SUPERINTENDENT desires change, age 28, married, eleven years experience on box board, chip, and high grade specialties. At present employed as Superintendent in eastern plant. Have business possibility in new line for right concern. Address, Box 27-420, care Paper Trade Journal. A-4

WANTED—Position as manager or superintendent of mill making binders, leather and other boards. Middle-aged man. Good at construction and repairs. Address, Box 27-381, care Paper Trade Journal. A-4

PAPER MAKER—Expert ability, wants to connect with capital, to manufacture product that will pay large dividends. Reference exchanged. Address, Box 27-421, care Paper Trade Journal. A-4

SUPERINTENDENT OR ASSISTANT—Energetic man, 33, married. Familiar with cylinder and Fourdrinier specialties, Kraft, bag, envelope, offset, manilas, bonds. Well up on colors. Technical training. Now employed, desires to change. References. Address, Box 27-429, care Paper Trade Journal. A-18

SITUATIONS WANTED

COULD YOU use the services of a man knowing the paper industry and the raw materials and supplies used in it? Will consider bigger sales connection. Address, Box 27-455, care Paper Trade Journal. tf.

POSITION WANTED—Man 28 years of age, thoroughly experienced in coarse papers. Eight years with large jobbing house, two years as assistant manager. Address, Box 27-440, care Paper Trade Journal. A-4

PAPER MILL SALES REPRESENTATIVE—Seeking representation for New York City and adjacent territory for mills making coated book, litho, supercalendered, machine finished, offset, high bulking book, sulphite bond, cover. Wide selling experience, knowledge of paper merchants specializing in the sale, and direct consumers of these papers, combined with an understanding of manufacturer's viewpoint and procedure. Address, Box 27-441, care Paper Trade Journal. A-11

PAPER MILL SUPERINTENDENT—Trained on M. F. and M. G. Kraft and Sulphite papers, over various grades. Best of references. Address, Box 27-393, care Paper Trade Journal. S-8

GROUND WOOD FOREMAN and Millwright open for position. Best of references. Familiar with electrical equipment. Address, Box 27-346, care Paper Trade Journal. A-11

ADJUSTER on Flat and Square and sack machines wishes position. Address, Box 27-397, care Paper Trade Journal. Jl-28

PAPER SALESMAN with twelve years experience seeking position as Chicago representative for manufacturer of fine papers. Address, Box 27-352, care Paper Trade Journal. tf.

WANTED

WANTED—2 W. & P. Pulpers, 2 Filter Presses and 1 Rogers Wet Machine. Address, Box 27-285, care Paper Trade Journal. tf.

WANTED—One Hamblet Sheeter, 50 inches wide with six roll stand. Give model and full particulars. Mid-States Gummed Paper Co., 2433 South Robey Street, Chicago, Ill. A-4

WOULD PURCHASE from a private firm a used cutting machine of standard manufacture, 48" to 60" wide. Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

TO PAPER MILLS PURCHASING PULP. If you are interested in securing a steady supply of pulp at a low price and will join us in the building of a mill on a site we own, having deep water and rail connections, where pulp wood can be secured for $2.00 per cord delivered at mill, and the best water, by actual test, for paper making in abundance, will be pleased to hear from you and to send you our proposition which we know will interest you. Address, Box 27-411, care Paper Trade Journal. A-11

On the job 25 Years

And Still going Strong
Looks Good for another 25 Years!

The unparalleled long-time performance of this "old timer" shows how well Shartle built stuff pumps 25 years ago —and is highly suggestive of the reason why more than 1000 Shartles are in use today.

Investigate and you will learn why Shartle stands supreme as a pump builder.

A QUARTER of a century, day and night, week after week, year after year, giving faithful, dependable service pumping filler stock in a board mill.

—and then to the scrap heap?—NO.

This pump was then rebuilt and (note this carefully) is now pumping stock in a felt mill where, with reasonable care, it will last another twenty-five years.

Of course this pump is a SHARTLE—the only kind that could even hope to deliver a performance record such as we have just described.

More than one thousand SHARTLE pumps in use today—each and every one of them a regular "He" pump. Investigate SHARTLE and the evidence will convince you.

Shartle Brothers Machine Company
MIDDLETOWN, OHIO

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

WANTED

WANTED—One 52 inch Super Calender—5 stack in good condition. Address, Box 27-395, care Paper Trade Journal. A-4

WANTED—One used Schopper Paper Tensile Tester. Diamond State Fibre Co., Bridgeport, Penna. A-11

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. 3-5-27

WILL MAKE AN ATTRACTIVE PRICE to some responsible party who can take 1,872 tons per year of either of the following grades of paper: Tag or light chip board of building paper. Address, Box 27-442, care Paper Trade Journal. A-18

FOR SALE

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf.

FOR SALE—6 Used Jones Imperial Jordans, with bronze or steel fillings. Will sell "as is" or factory rebuilt. THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y. tf.

FOR SALE—Best pulp and paper mill site on Columbia River, Oregon. Situated in center of log production. Abundant water. 60,000 ft. capacity saw mill. Rail and water shipping facilities. Will sell at bargain or will exchange for stock in properly financed mill. Address, Box 27-390, care Paper Trade Journal. A-4

FOR SALE—One 64" Holyoke Paper Trimmer. Good condition. Address, Box 27-443, care Paper Trade Journal. A-18

SITUATIONS WANTED

BOSS FINISHER desires position in a progressive up-to-date mill. 15 years experience in very good mills on wrapping, book, bond, tissue and news. Single, duplex cutters, layboys, winders, ream cuteers; shipping clerk, mill office work. References. Address, Box 27-447, care Paper Trade Journal. A-25

PAPER MACHINES

For Sale

In good condition. Immediate delivery.

One 2 cylinder machine. 2 presses; 10 dryers 42" x 84"; one calender; reel; single drum winder; Marshall drive.

One Fourdrinier machine. Wire 96" x 50'. 2 presses; 15 dryers 48" x 94"; one calender; reel; two drum winder; Marshall drive.

By: FRANK H. DAVIS COMPANY
175 Richdale Avenue Cambridge, Mass.

FOR SALE
BOARD MILL EQUIPMENT

3—800 lb. Downingtown Beaters.
2—70" Downingtown Wet Machines.
1—48" Stack Board Calenders.
1—36" Stack Board Calenders.
1—120 Ton Screw Press.
1—65" Ream Cutter.
250 H.P. and 150 H.P. Engines.

Address, Box 27-270, care Paper Trade Journal.

HELP WANTED

WANTED—Superintendent for up-to-date paper board mill, making combination board. Give experience, age and references. Good position for right man. Address, Box 27-448, care Paper Trade Journal. A-18

SUPERINTENDENT WANTED for one-machine board mill in East. Must be familiar with specialties and a good color man. Write, stating age and experience. Address, Box 27-437, care Paper Trade Journal. A-4

HIGH-CLASS DRAFTSMAN, capable of taking full charge of mill engineering problems, wanted for pulp and paper mill in Virginia. Give references; state experience and salary expected. Address, Box 27-446, care Paper Trade Journal. A-11

Classified Advertising Brings Results

FOR SALE

1—72" Hamblet Single Cutter with 24 roll back stand.
1—84" Beloit heavy duty duplex.
1—84" Black-Clawson heavy duty duplex, with duplex slitter.
1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—60" Hamblet Cutter with 10 roll Backstands.
1—110" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—57" Hamblet Duplex Cutter. Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

FOR SALE

2—Iron tub Beaters, practically new. Rolls 70 x 66. Made by Emerson Mfg. Co.

1—Wood tub Beater, practically new. Roll 70 x 66. Made by Emerson Mfg. Co.

2—Dilts Beaters, iron tubs. Rolls 54 x 62. A-1 shape.

1—Heavy duty Beloit 114" Paster.

4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.

1—Dayton Beater and Hoist Iron tub Beater. A-1. Rolls 64" diameter, 54" face.

1—Breaker Roll 64" diameter by 54" face.

1—Downingtown Iron tub Beater with Brownell Buehler perforated back fall. Rebuilt for immediate shipment. Roll 44" x 44".

The Shartle Brothers Machine Co.
Middletown, Ohio tf

FOR SALE

FOR SALE

1—72" Model 10 Cameron.

11—Dryers 48" x 110".

60" trim Black-Clawson Fourdrinier machine.

Several White cedar stuff chests, A-1 shape.

1—48"—3 cylinder machine.

1—70"—2 cylinder machine.

Several Chippers.

Four deck Beloit frames. These are modern and extra heavy.

One Ryther & Pringle Multiple Saw Slasher. Will cut 32'.

One Farrel Roll Grinder.

One No. 2 Lannoye Pulper.

One 61" Holyoke Super-Calender

The Shartle Brothers Machine Company
Middletown, Ohio tf.

Good Used Cylinder Machines

1—Pusey & Jones 96" trim, 6 cylinders, 45—42" dia. dryers, 102" face, press rolls, 2 stacks, calenders, duplex cutter and drum winder.
1—Black-Clawson 96" trim, 2 cylinders, 22—42" dia. dryers, 108" face, press rolls, stack of calenders and double drum winder.

TECHNICAL ECONOMIST CORPORATION
40 RECTOR ST., NEW YORK, N. Y.

HEADQUARTERS
For Good Used Machinery

ROTARY DRYERS AND KILNS
6—4' x 30' American Process.
2—6' x 60'.
1—6' x 100'.
1—9' x 125'.

PULPER MIXERS
1—W. & P. size 17-200 gals.
Also several smaller sizes.

TUBE AND ROD MILLS
1—3' 6" x 12' Allis Chalmers.
1—4' x 16' Schmidt.
5—5' x 22' Allis Chalmers.
7—5' 6" x 22' Schmidt.
1—6' x 22' Gates.

SULPHUR BURNERS
1—3' x 8' Glens Falls.
4—4' x 16' Glens Falls.
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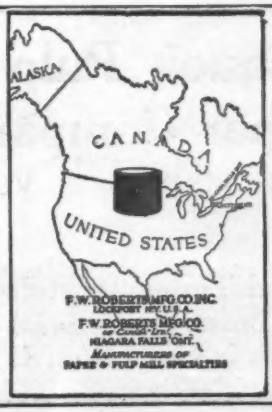

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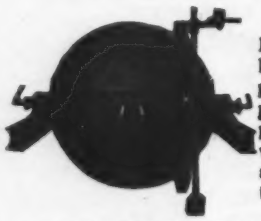

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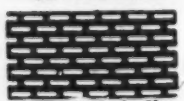

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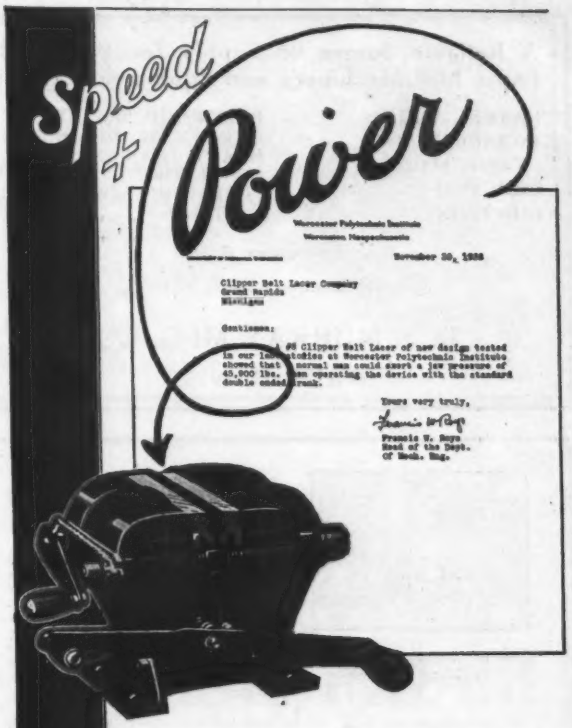

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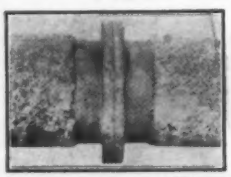

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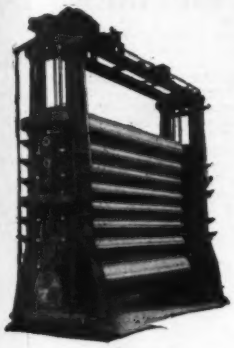

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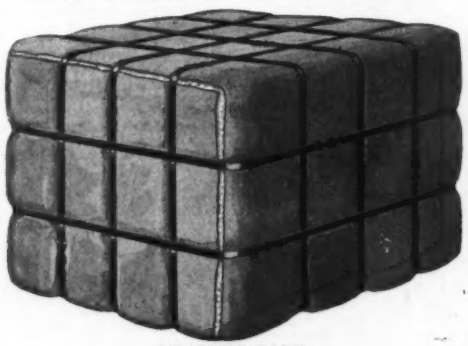

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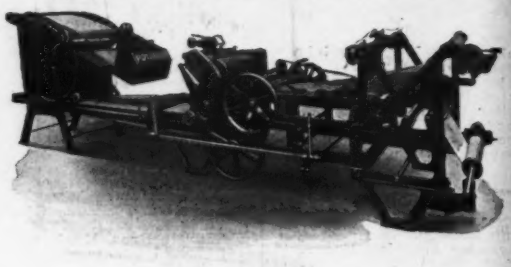

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